



GAMMA Building Management Systems

Catalog ET G1 • 2009/2010



Answers for infrastructure.

SIEMENS

Related Catalogs

ALPHA Distribution Boards and Terminal Blocks

ET A1

Order No.:
pdf only:
(E86060-K8210-A101-A9-7600)



ALPHA 400-ZS Meter Cabinets

ET A2

Order No.:
Regional catalogs available on request
(available in German only)



BETA Low-Voltage Circuit Protection

ET B1

Order No.:
pdf only:
(E86060-K8220-A101-B1-7600)



GAMMA Building Management Systems

ET G1

Order No.:
pdf only:
(E86060-K8230-A101-A9-7600)



DELTA Switches and Socket Outlets

ET D1

Order No.:
pdf only:
(E86060-K8240-A101-A9-7600)



The Offline Mall

CA 01

Order No.:
E86060-D4001-A510-C7-7600
(DVD)



The Online Mall

Internet:
<http://www.siemens.com/automation/mall>



Catalog-PDF

Internet:
<http://www.automation.siemens.com/et>



Contents

ALPHA SIMBOX Small Distribution Boards • SIMBOX 63, SIMBOX LC, SIMBOX WP • ALPHA 160 - DIN Wall-Mounted Distribution Boards • ALPHA 400 - DIN Wall-Mounted Distribution Boards • ALPHA 630 - DIN Floor-Mounted Distribution Boards • ALPHA AS Modular Distribution Boards • ALPHA Modular Distribution Boards up to 1600 A • ALPHA 400-ZS Meter Cabinets • ALPHA BOX • ALPHA 8HP Molded-Plastic Distribution Systems • Planning and Configuration • ALPHA FIX terminal blocks: Screw Terminals, Terminals with Spring-Loaded Connection, Combination Plug-In Terminals, Plug-In Terminals, Insulation Displacement Terminals, Accessories for Terminal Blocks

Region Z1 • Region Z2 • Region Z3 • Region Z4

Protecting: Miniature Circuit Breakers • Residual Current Protective Devices • Low-Voltage Fuse Systems • SITOP Semiconductor Fuses • SR60 Busbar Systems • Overvoltage Protection Devices
Switching: Switches and Light Indicators • Switching Devices • Timers • Transformers, Bells and Socket Outlets
Measuring: Three-Phase Measuring Devices • Single-Phase Measuring Devices
Monitoring: Monitoring of Electrical Values • Monitoring of Plants and Devices

Display, Operation • Output Devices • Input Devices • Combination Devices • Lighting • Sun Protection, Anti-glare Protection, Utilization of Daylight • Heating, Cooling, Ventilation, Air-conditioning • Load Management • Safety • Quick-assembly Systems • Gateways, Interface Converters • Physical Sensors • Control and Automation Devices • System Products • System Accessories • Counters • Wave

i-system • DELTA line • DELTA vita • DELTA miro • DELTA profil • DELTA style • DELTA natur • DELTA ambiente • m-system • Surface-Mounting Product Range • Switching/Pushbutton Control/Dimming • Motion Detectors • Shutter/Blind Controls • Room Temperature Controllers • Data and Communication Systems • Remote Control Systems • Smoke Detectors • GAMMA Bus Coupling Unit

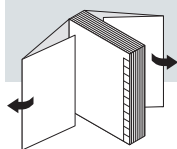
All products of automation, drives and installation technology, including those in the catalogs listed above.

All products of automation, drives and installation technology, including those in the catalogs listed above.

All catalogs for electrical installation technology can be downloaded as PDF files.

Registered trademarks

All product designations may be registered trademarks or product names of Siemens AG or other supplying companies. Third parties using these trademarks or product names for their own purposes may infringe upon the rights of the trademark owners. Further information about electrical installation is available on the Internet at:
<http://www.siemens.com/et>



Technical Assistance



Expert technical assistance for Low-voltage controls and electrical installation.
Tel: +49 (0) 180 5050 222 *
Fax: +49 (0) 180 5050 223 *
E-Mail:
ad.support@siemens.com

*0.14 /min. from a German landline network, mobile telephone prices may vary

GAMMA instabus

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Explanations

DT (delivery time class)	<table><tr><th>DT</th><th>Meaning</th></tr><tr><td>▶</td><td>preferred type</td></tr><tr><td>A</td><td>two workdays</td></tr><tr><td>B</td><td>one week</td></tr><tr><td>C</td><td>three weeks</td></tr><tr><td>D</td><td>six weeks</td></tr><tr><td>X</td><td>on request</td></tr></table>	DT	Meaning	▶	preferred type	A	two workdays	B	one week	C	three weeks	D	six weeks	X	on request	Preferred types are device types that can be delivered immediately ex works, i.e. they are dispatched within 24 hours. If ordered in normal quantities, the products are usually delivered within the specified delivery times, calculated from the date we receive your order. In exceptional cases, delivery times may vary from those specified. The delivery times are valid ex works from Siemens AG (products ready for dispatch). Shipping times depend on the destination and the method of shipping. The standard shipping time for Germany is one day. The delivery time classes specified in the catalog are valid as of 10/2008 and are constantly being optimized. For more up-to-the-minute information, please visit our site at: http://www.siemens.com/automation/mail.
	DT	Meaning														
	▶	preferred type														
	A	two workdays														
	B	one week														
	C	three weeks														
	D	six weeks														
X	on request															
PU (price unit)	The PU column (price unit) specifies the quantity to which the price and weight refer.															
PS/P. unit (packaging size/ packaging unit)	The first digit in the PS/P. unit column (packaging size/packaging unit) indicates the minimum order quantity. You can only order this specified quantity or a multiple thereof. The second digit in the PS/P. unit column (packaging size/packaging unit) specifies the number of units contained in larger packaging (e.g. in a carton). You must order this quantity or a multiple thereof if you want the item to be delivered in a larger packaging quantity. Examples: <table><tr><th>PS/P. unit</th><th>Significance</th></tr><tr><td>1</td><td>You can order one item or a multiple thereof.</td></tr><tr><td>5</td><td>For example, five units are packed in a bag. Because the bags cannot be opened, you can only order a multiple of the quantity contained in the bag: 5, 10, 15, 20 etc.</td></tr><tr><td>5/100</td><td> One carton contains (for example) 20 bags, each containing 5 units, i.e. a total of 100 units. If only cartons are available for delivery, you need to order a multiple of the carton quantity: 100, 200, 300, etc. Ordering a quantity of 220 units, would produce the following delivery: two cartons, each containing 100 units (= 200 units) and 4 bags, each containing 5 units (= 20 units). </td></tr></table>		PS/P. unit	Significance	1	You can order one item or a multiple thereof.	5	For example, five units are packed in a bag. Because the bags cannot be opened, you can only order a multiple of the quantity contained in the bag: 5, 10, 15, 20 etc.	5/100	One carton contains (for example) 20 bags, each containing 5 units, i.e. a total of 100 units. If only cartons are available for delivery, you need to order a multiple of the carton quantity: 100, 200, 300, etc. Ordering a quantity of 220 units, would produce the following delivery: two cartons, each containing 100 units (= 200 units) and 4 bags, each containing 5 units (= 20 units).						
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PG (Price Group)	Each product is assigned to a price group.															
Weight	The value specified in the Weight column specifies the weight in kg for the quantity specified in the PU column (price unit).															
Dimensions	Unless stated otherwise, all dimensions are specified in mm.															

GAMMA Building Management Systems

Catalog ET G1 · 2009/2010



The products and systems listed in this catalog are developed and manufactured using a quality management system certified by VDE and according to EN ISO 9001:2000.

Supersedes:
Catalog ET G1 · 2008

The products in this catalog can also be found
in the electronic Catalog CA 01.

Order No.:
E86060-D4001-A510-C7-7600 (DVD)

Contact your local Siemens sales office
for further information

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GAMMA *instabus*

Display, Operation

1

Output Devices

2

Input Devices

3

Combination Devices

4

Devices for Special Applications

Lighting

5

Sun-Protection, Anti-Glare
Protection, Utilization of Daylight

6

Heating, Cooling, Ventilation,
Air-Conditioning

7

Load Management

8

Safety

9

Quick-Assembly Systems

10

Gateways, Interface Converters

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Physical Sensors

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Control and Automation Devices

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System Products

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System Accessories

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Counters

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GAMMA *wave*

GAMMA wave Radio System

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Application Examples

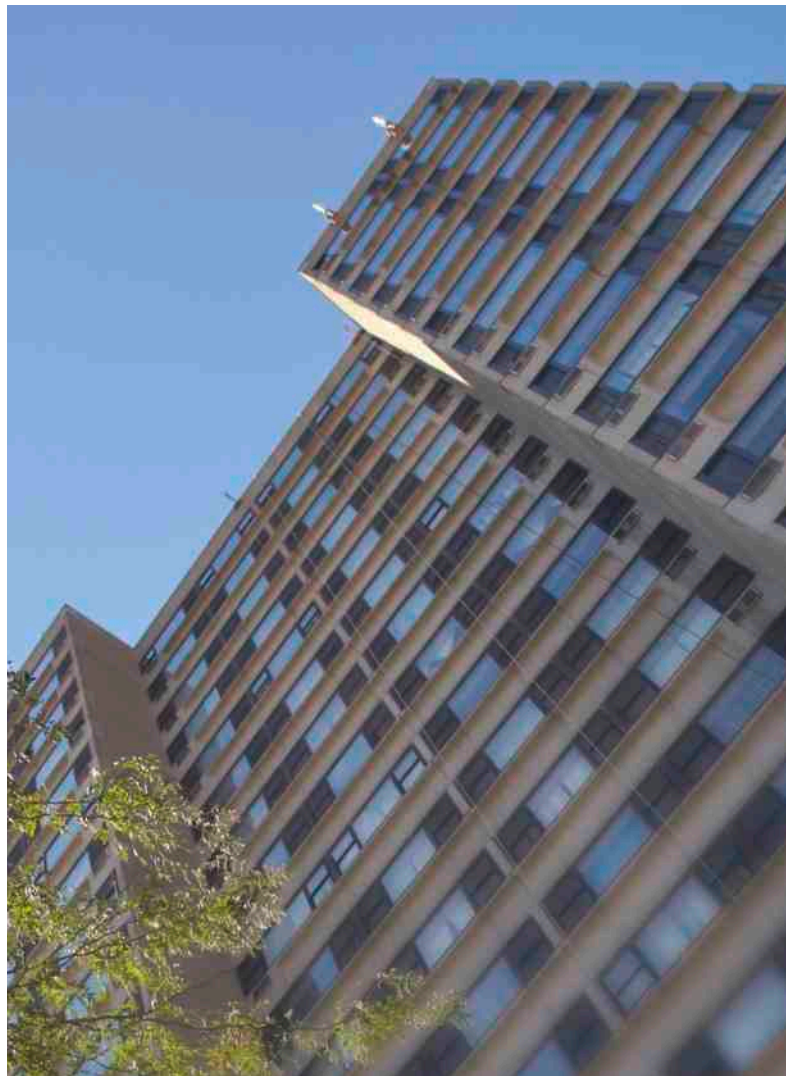
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Technical Information

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Appendix

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Innovation is the key to success.

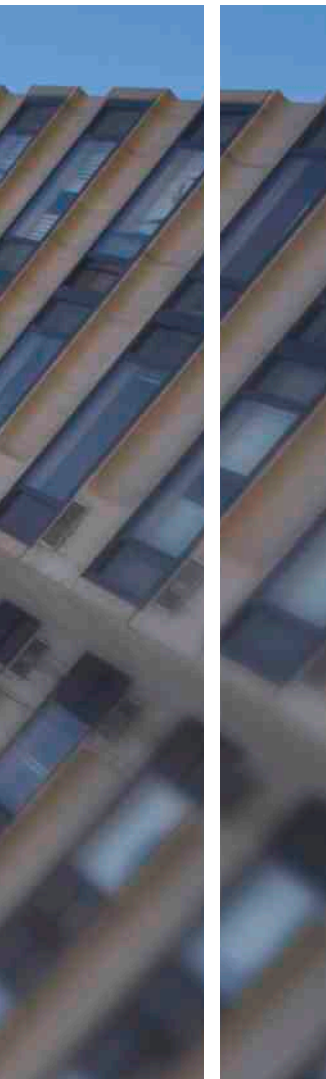
We continue to invest heavily in the research and development of new technologies. We have our own experimental and test laboratories where we carry out intensive basic research on the climate in buildings and on fire, gas and explosion protection. This gives us the experience and the opportunity to create solutions that continuously flow into our new products and systems. At special test premises, such as airport buildings and hospital premises, we test the interoperability of the individual systems. This empirical data is incorporated into industry-specific solutions that continually set new standards and underscore our claim to technological leadership.

Energy-efficiency and environmental protection is our business principle.

And this business principle applies cross-company and to each and every employee: We are committed to environmental protection and the careful use of resources. Since 1994, we have been involved in more than 1300 energy efficiency projects, which have jointly contributed to the saving of around 1.5 billion euro in energy costs and reduced the annual CO₂ burden on the environment by approx. 700,000 t. So, as you can see, intelligent solutions in technical infrastructures benefit not only the owners and operators of buildings, but also those who have nothing to do with them.

Close customer relations are our USP.

This is not just a soundbite, we make every effort to ensure close customer relations. We have in-depth knowledge of their business and involve them in the development of our innovations. Our skills make us an expert provider of industry-specific solutions and services, a preferred partner during the life cycle of a building - and allow us to enjoy mutual growth with our customers.



Answers for Infrastructure.

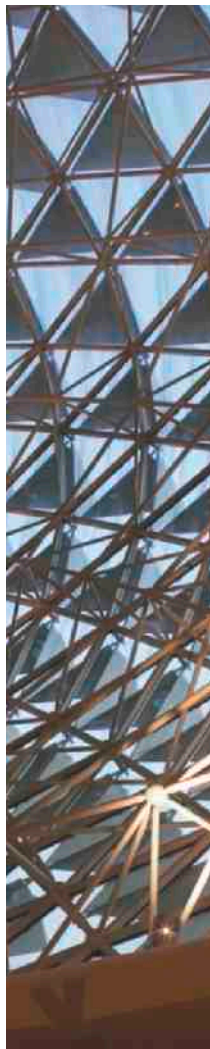
Siemens Industry meets the great challenges of our time head on. With solutions for technical infrastructure in industrial and non-residential buildings, residential buildings and public facilities, Siemens ensures enhanced comfort and energy efficiency in buildings, as well as the protection and safety of persons, property and business processes. As a longstanding and professional partner with all-round expertise in the industry sector, we offer tailored solutions that generate sustainable added value for our customers.

Gain a competitive edge - with integrated building solutions.

Total Building Solutions means more innovation from a single source for enhanced functionality under one roof. When it comes to delivering turnkey buildings equipped with cutting edge power distribution, building automation and safety and fire-protection equipment from a single source, Siemens is in a league of its own. And just to show that we are more than just the sum of our parts, our portfolio includes:

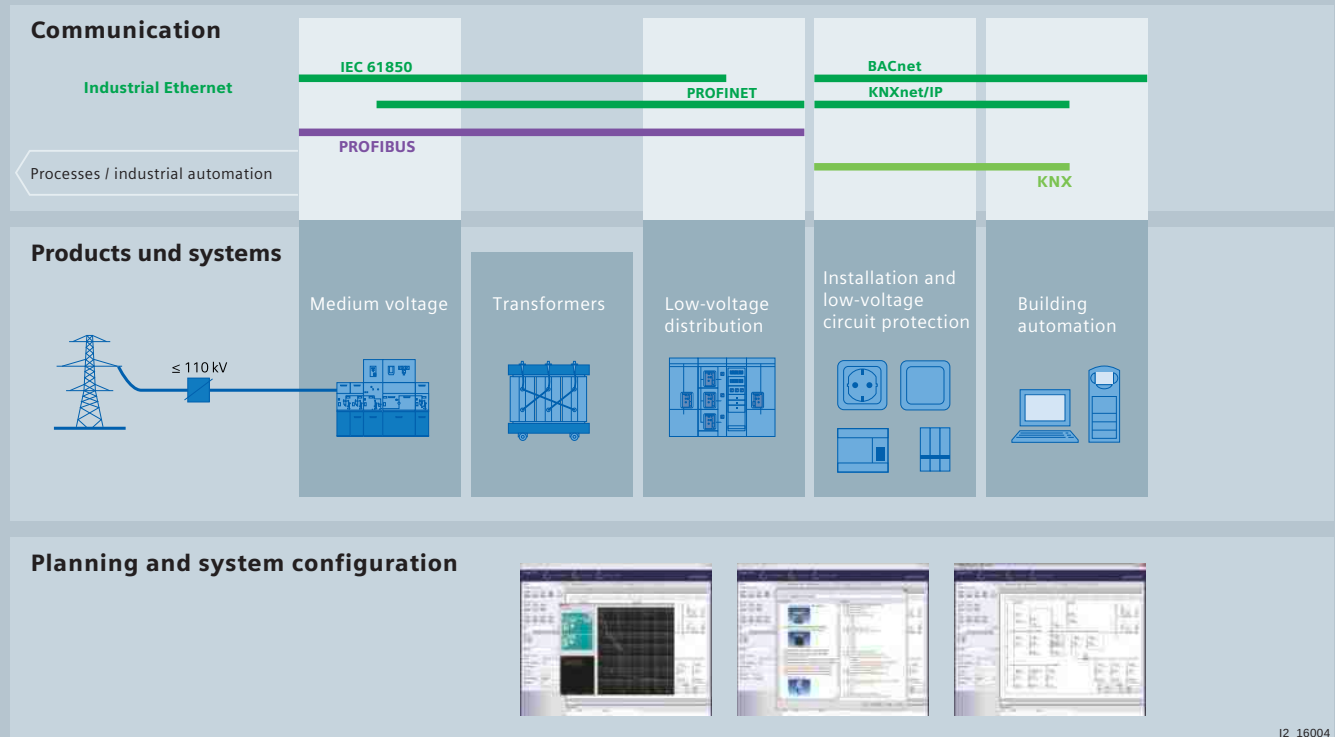
- *Electrical installation*
Distribution boards and terminal blocks, low-voltage circuit protection, building management systems, switches and socket outlets
- *Building automation*
Heating, ventilation and air-conditioning controls, overall energy solutions offering guaranteed savings
- *Safety solutions*
Access control, video monitoring, burglar protection, alarm control centers, operation of alarm control centers
- *Fire protection*
Fire alarms, alerting, evacuation, extinction and complete fire protection solutions

Take a closer look at all the options available from Siemens. Check out the opportunities our products provide and discover how we can help you sustainably enhance your competitive edge.



Integrated power distribution from one source.

Totally Integrated Power.



I2_16004

Electrical power distribution in buildings requires integrated solutions. Our response: Totally Integrated Power. This means innovative and integrated, interface-optimized products and systems which have been optimally coordinated and complemented with communication and software modules that link power distribution to building automation or industrial automation. Totally Integrated Power accompanies power distribution projects from one end to the other. From A to Z. From the planning to the building's use: Totally Integrated Power offers significant advantages in every project stage and to everyone involved in the project – the investors, electrical planning engineers, electricians, users and building facility managers.

Our portfolio comprises everything from engineering tools to the matching hardware: from switchgear and distribution systems for medium voltage to transformers, from switching and circuit-protection devices to low-voltage switchgear and busbar trunking systems, as far as to the small distribution board and the wall outlet. It goes without saying that both the medium-voltage switchgear, which requires no maintenance, and the low-voltage switchgear are type-tested, and their busbar connections, too. Comprehensive protection systems ensure the safety of man and machine at any time.

Electrical Installation from A to Z

ALPHA Distribution Boards and Terminal Blocks

The ALPHA range comprises small distribution boards, meter cabinets, distribution boards and molded-plastic distribution boards. The ALPHA FIX terminal blocks meet all your needs for clear and manageable wiring using a full range of connection methods.



BETA Low-Voltage Circuit Protection

Siemens is the only manufacturer to offer an all-round protection concept with an optimally coordinated device range for line protection, personal and fire protection, lightning and overvoltage protection, device and system protection. Switching, measuring and monitoring devices complete the low-voltage circuit protection. Based on an all-round protection concept, our device range offers a complete spectrum of protection devices, such as fuses, miniature circuit breakers, residual current-operated circuit breakers and surge suppressors, as well as switching devices, measuring instruments and monitoring devices.



GAMMA Building Management Systems

Buildings should be energy efficient and easy to adapt quickly and cost-effectively to user requirements. Lighting, sun protection and indoor environment should be achieved in an energy-saving and user-friendly manner, while persons and property are protected against hazards and damage. The tried and tested GAMMA *instabus* building management systems support the flexible networking of electrical devices and functions in buildings over two wires of the bus cable and connection to the systems over KNXnet/IP – thus providing greater efficiency, safety, flexibility and comfort.



DELTA Switches and Socket Outlets

The DELTA switch and socket outlet range combines a wide range of different design interfaces with innovative and safe technology. And because the operator interfaces are simple to interchange, you can enjoy complete safety – even when your taste or the environment changes.



Modern electrical switching and installation technology

These days it's hard to imagine daily life without electricity. Modern electrical switching and installation technology is an essential requirement for ensuring that our use of electricity is safe and user-friendly.

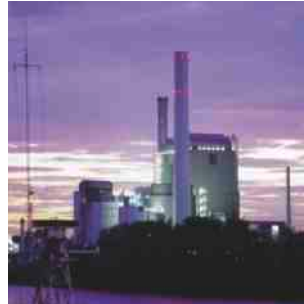
Shaping the future with innovations

Without innovations there can be no progress. That is a well-known fact. And that is why we make every endeavor to continue producing innovations in the area of electrical installation technology, as well as improving existing products and developing new applications. All this with the aim of offering innovative and high-quality products across the whole spectrum of electrical installation technology in order to further increase our competitive edge and open up new market opportunities.

Our factory in Regensburg and our branches worldwide

Siemens has been developing products and innovative solutions for industry and for residential and non-residential buildings since 1883. While production began in Berlin, our production has now been based in Regensburg for the last 60 years. Today, this factory is one of the key international manufacturers of installation technology. We use cutting edge equipment: CAD, simulation and automated laboratory equipment.

We now have more than 17 production sites in Europe, Asia and America - which is the best way to ensure compliance with country-specific standards - and the best way to ensure that our customers enjoy local support.



Industry



Non-residential buildings



Residential buildings

Quality and the Environment

Quality in the context of the environment

Increasing urbanization and a growing global population have meant that it has become one of our key challenges to look after and preserve our natural resources – one we are happy to meet head on.

Acting responsibly

As part of the ecologically responsible and globally active Siemens Group, we are setting the bar high. Our environmental protection objectives are an integral part of our rigorous quality management.

Even during the development of our products and systems, we take a critical look at their possible effects on the environment. So, without exception, they all comply with the EC Directive RoHS (Restriction of Hazardous Substances). During this development phase, we also lay the foundations for the highest quality: from the very outset, we define reliability requirements and the related quality assurance measures, and these are incorporated into all drafts.

All products and systems are also subject to strict quality specifications during production and testing. We take great care to ensure compliance with these specifications in order to guarantee our customers nothing but the very best quality. Our many certificates bear witness to our success.

Pioneers in recycling

As a founder member of a non-profit association for the active promotion of the environment-friendly recycling of disabled LV HRC fuse links, Siemens takes a pro-active approach to recycling. The aim of the association is to create a voluntary system for the environment-friendly recycling of LV HRC fuse links, which is simple and free for participating collectors. All proceeds are used to support a range of projects in the training and research sector.

Energy saving with GAMMA *instabus*

The functions of the GAMMA Building Management Systems make a huge contribution to environmental protection. For example, GAMMA *instabus* links the management functions lighting, sun protection and indoor environment.

The automatic shutter/blind control controls the blind slats so that maximum daylight is allowed to penetrate without dazzling. A constant light level control ensures that the level of light is always just right. This saves electricity – which is good for the environment – and also reduces energy costs. The optimum shading of a building also considerably reduces energy

requirements for air-conditioning and ventilation systems, thus enhancing the energy efficiency of the building.

These are just a few examples of the wide range of options offered by GAMMA *instabus* that help save energy and make building management more cost-efficient. Thus the convenience of modern technology pro-actively supports environmental protection.

Pro-Active environmental protection

It goes without saying that we are certified to ISO 14001 – as are all Siemens premises. Furthermore, as an active member of ZVEI (German Electrical and Electronic Manufacturers' Association), we pro-actively support the protection of the environment with a wide range of measures, such as the development of binding environmental management systems.

In 2006 - following 1995, 1999 and 2002 - our factory in Regensburg was presented with its fourth Environmental Award of the City of Regensburg for its strong commitment to environmental issues. This latest prize was awarded for the fact that we have voluntarily renounced the use of hazardous substances in our products and for our consistent application of this aim in our galvanic processes.



Our Added Extra

Build on a sound basis

With our basic and advanced courses, you can lay the foundations for your business success. In our modern training center in Regensburg you will learn the necessary theoretical and practical essentials from lecturers who are experts in their fields. Dynamic and easy to understand training with multimedia teaching equipment and many practical examples. Available in German and English. If required, we also provide training in-house or in one of our more local Siemens branches.

Our range of training courses covers the whole span of electrical installation. You will get to know our entire portfolio of products and their application. Step-by-step we will familiarize you with the entire spectrum of modern installation options, thus opening up a whole new world of business opportunities.

Oh, and by the way: In 1991, the Training Center was the first certified training center in the world to offer KNX training courses, and is still the only manufacturer training center to offer the whole range of KNX-certified courses in both German and English.

For details of our current range of courses, please visit our Web site at:

<http://www.siemens.de/installationstechnik/kurse>

Or contact us:

Tel.: +49 (0) 941 790 2950

e-mail: cscet.aud@siemens.com



Comprehensive support

We offer all-round support: if you have any queries regarding our products, the planning of your electrical installation or the availability of technical documentation.

Just give us a call:

Tel.: +49 (0) 180 50 50 222

(0.14 €/minute from a German landline)

Fax: +49 (0) 180 50 50 223

e-mail: ad.support@siemens.com

Installation technology on the net

Visit us on the Internet. Our Web site offers information on all our products – ALPHA Distribution Boards and Terminal Blocks, BETA Low-Voltage Circuit Protection, GAMMA Building Management Systems and DELTA Switches and Socket Outlets, so visit us at:

<http://www.siemens.com/e-installation>



Software at your Services

Labeling software for complete electrical installations

The Siemens labeling software means it has never been easier to label your switches and socket outlets, distribution boards and low-voltage controls.

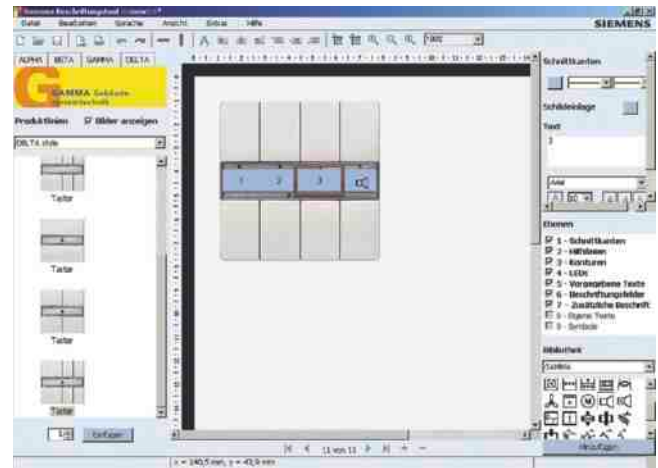
Each product is labeled using a standard printer on prepunched adhesive film or simply on DIN A4 paper. Generally any device used in electrical installation can be labeled using this labeling system. This allows you to create a neat and tidy distribution board and clearly labeled switches and socket outlets – long after installation.

The benefits:

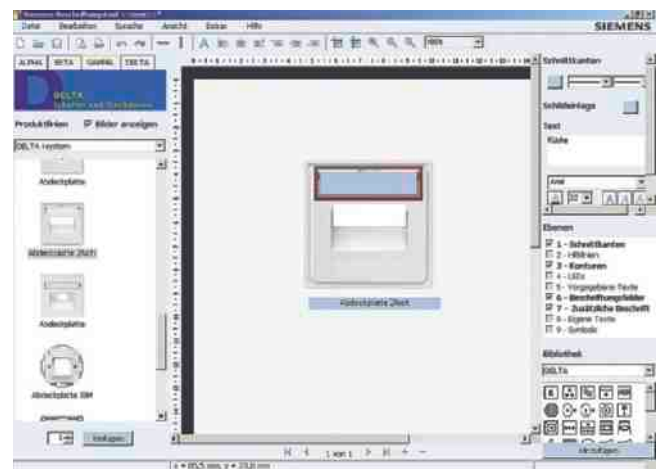
- Your work is made easier and your installation has a uniform appearance, thanks to a single and consistent labeling system
- Adhesive labels are durable, simple to apply and can be used for all devices.

The program is simple to use and available free of charge on the Internet:

<http://www.siemens.com/labeling-tool>



Labeling tool, example GAMMA



Labeling tool, example DELTA

GAMMA Planer and Installation Engineer Tool

This tool lets you call up the "Siemens. GAMMA Catalog" for building management systems, compile product descriptions and specifications and download them in a range of formats – online, STL-Bau-compliant and free of charge.

The "Siemens. GAMMA Planner Tool" enables the simple creation of STL-Bau-compliant and test-safe master specifications on the basis of the Siemens. GAMMA Catalog. The fact that prices for material and labor are also taken into account means that cost estimates can be drawn up in no time at all.

The free calculation software for installation engineers "Siemens. GAMMA Installation Engineer Tool" enables the simple creation of offers for building management systems on the basis of Siemens GAMMA Catalog in a minimum of time.

<http://www.din-bauportal.de/siemens>

Visualization

The visualization function provides an overview of all the relevant building states and allows the appropriate action to be taken where required. It is also suitable for remote control. This forms the basis of an efficient building management system. The visualization is scalable for all applications and the functions are of modular design (see chapter "Display, Operation").

ETS

ETS is the software for the planning and configuration of intelligent KNX building management systems. This commissioning tool is based on the KNX standard and is maintained by the KNX Association. It is used for the manufacturer-independent commissioning of all KNX products. You only need ETS for Siemens products – no other tools are necessary. This allows users to create up-to-the-minute and complete project documentation at the touch of a button.

<http://www.knx.org>



GAMMA Building Management Systems

GAMMA instabus



Display, Operation



Output Devices



Input Devices



Combination Devices



Lighting



Sun Protection, Anti-Glare Protection,
Utilization of Daylight

GAMMA instabus



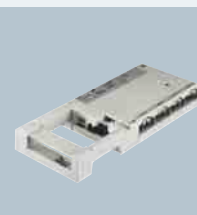
Heating, Cooling, Ventilation,
Air-Conditioning



Load Management



Safety



Quick-Assembly Systems



Gateways, Interface Converters



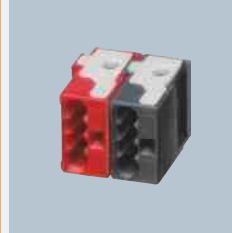
Physical Sensors

GAMMA instabus

Control and Automation Devices



System Products

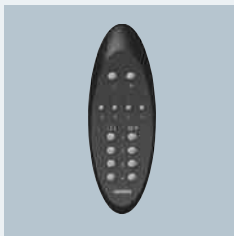
GAMMA instabus

System Accessories



Counters

GAMMA wave



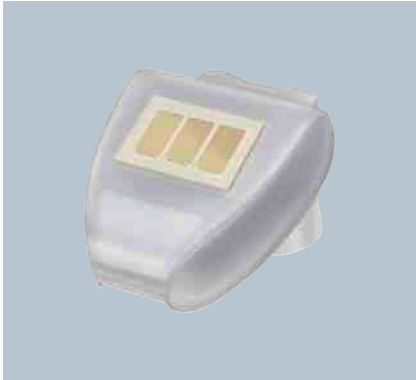
GAMMA wave Radio System

Buildings should be energy-efficient and easy to adapt quickly and cost-effectively to user requirements.

Lighting, sun protection and the indoor environment should be achieved in an energy-saving and user-friendly manner, while persons and property are protected against hazards and damage.

The tried and tested GAMMA instabus building controls support the flexible networking of electrical devices and functions in buildings over two wires of the bus cable and connection to building management systems over KNXnet/IP - thus providing greater efficiency, safety, flexibility and comfort.

New Developments



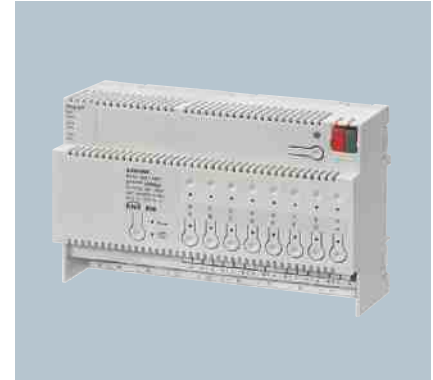
Weather systems

Compact weather systems with integrated sensor technology for the sun protection control of your building
[→ Page 6/8](#)



Brightness controllers

Brightness measurement and dimmer control for energy-saving room and workplace lighting
[→ Page 5/15](#)



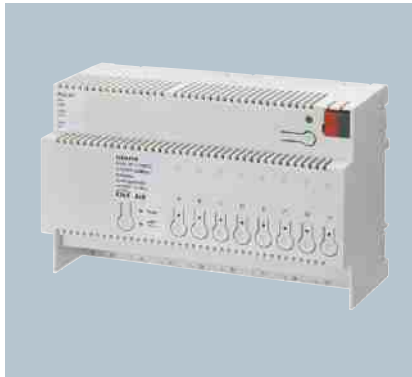
Combination switch actuators

Compact and universal
[→ Page 4/6](#)



Motion detectors

Outer motion detector IP 55 with integrated KNX interface
[→ Page 12/7](#)



Powerful switching actuator technology

Switches eight loads up to 16 A
[→ Page 2/6](#)



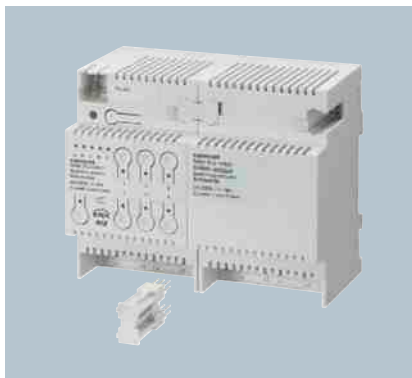
Flush-mounting switching actuator technology

Distributed installation shortens cable routes and reduces the amount of work required for cabling
[→ Page 2/6](#)



Dual sensors

The IP 54 dual sensor offers light-responsive control of shutters/blinds and lighting
[→ Page 5/15](#)



Modular switching actuator technology

Combining the advantages of large and small
[→ Page 2/5](#)



IP Viewer

Easy-to-use mini viewer

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Touch panels

All functions at a glance

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KNX/SIMATIC S7 connection

The perfect combination of KNX and Simatic S7

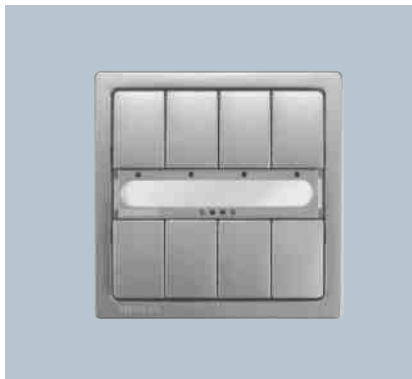
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Scene/event modules

Unrivalled flexibility and performance

→ Page 13/4



DELTA style platinum metallic

Clarity in form and function

→ Page 1/7



Visualization

Cambridge Studio for individual visualization

→ Page 1/38

GAMMA *instabus* – available in all DELTA Product Ranges

DELTA line



Titanium white



Electrical white



Aluminum metallic



Carbon metallic

DELTA vita



Titanium white/red/titanium white



Aluminum metallic/green/aluminum metallic



Carbon metallic/chrome/carbon metallic



Gold/gold/titanium white



Color elements: platinum/chrome/gold/dark red/dark blue/green/red/blue/orange/yellow/titanium white

DELTA miro glass



Crystal green/
aluminum metallic



White/
titanium white NEW



Black/
aluminum metallic NEW



Orient/
carbon metallic NEW



Arena/
electrical white NEW

DELTA miro aluminum



Natural/
aluminum metallic NEW



Titanium/
carbon metallic NEW



Graphite/
titanium white NEW



Yellow oxide/
titanium white NEW

DELTA miro wood



Maple red/
aluminum metallic



Maple/
aluminum metallic



Beech/
aluminum metallic



Cherry/
aluminum metallic



Wenge/
aluminum metallic

DELTA miro color



Titanium white



Aluminum metallic



Carbon metallic

DELTA profil



Titanium white



Anthracite



Silver



Pearl gray

DELTA style



Titanium white



Platinum metallic 



Basalt black

DELTA ambiente



Arctic white



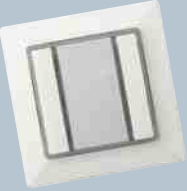
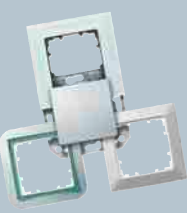
Arctic white/steel



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1/10	Surface-mounting pushbuttons, IP44
	Multifunction Pushbuttons
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	Pushbutton Accessories
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Introduction

Overview

		Application	Page
	Pushbuttons	No matter which style you prefer, DELTA has the right switch and socket outlet product range.	1/4
	Multifunction pushbuttons	These include pushbuttons with IR receivers, with room temperature controllers, motion detectors and LCD.	1/12
	Displays	A space-saving combination that offers optimum display and operator friendliness.	1/19
	Pushbutton accessories	More information on rockers, color elements, pictographs, frames, intermediate frames and accessories for trunking systems.	1/21

Introduction

		Application	Page
	Touch panels	Touch panels are visually attractive and easy to use.	1/36
	Remote controls	A range of room functions, such as lighting, can be wirelessly operated over either infrared or radio control.	1/37
	Visualization, software	Use a PC for display, operation and archiving – from one or more operator terminals.	1/38
	Visualization, server	Display and operation on the PC – quick and easy to install.	1/43

Pushbuttons

Technical specifications

Design	i-system							DELTA profil/style							DELTA ambiente			DELTA millennium					
								 															
Type	UP 221	UP 222	UP 223	UP 221E		UP 222E		UP 241	UP 242	UP 285	UP 243	UP 244	UP 286	UP 245	UP 246	UP 287		UP 284			IKE 281	IKE 282	IKE 283
Application program	211501	221501	230201	212001	908402	222001	908502	211301	907402		221301	907502	241301	241901	907602		241401	241D01	907802	904101	904201	904301	
Enclosure data																							
Module for channel installation		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	✓	✓	✓	
Dimensions																							
• Height	mm	55								65 (DELTA profil), 68 (DELTA style)							65			80			
• Width	mm	55								65 (DELTA profil), 68 (DELTA style)							65			166			
• Depth	mm	11								14							14			41			
Display/control elements																							
Individual pushbuttons	2	4	6	2	2	4	4	2	2	4	4	8	8	8	8	8	8	8	1	2	4		
Pushbutton pairs	1	2	3	1	1	2	2	1	1	2	2	4	4	4	4	4	4	4	--	--	--		
Operation (v: vertical, h: horizontal)	h	h	h	h	h	h	h	v	v	v	v	v	v	v	v	v	v	v	--	--	--		
LED per pushbutton pair for status indication or configurable as orientation light	--	--	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--		
Red luminous bar for status indication or configurable as orientation light	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	✓	✓	✓		
Separate LED for orientation light (ON/OFF configurable)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--		
Labeling field	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	✓	✓	✓
Individually engravable pushbutton	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	✓	✓	✓	
Pictographs supplied	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	✓	✓	✓	--	--	--	
Bus connection																							
Integrated bus coupling units	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	✓	✓	✓	
Plug onto UP 110 bus coupling unit	✓	✓	✓	✓	--	✓	--	✓	--	✓	--	✓	✓	✓	✓	✓	✓	✓	--	--	--		
Plug onto UP 114 bus coupling unit	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	
General functions																							
Max. number of group addresses	9	9	9	13	38	13	38	13	38	13	38	9	27	38	12	27	38	28	28	28			
Max. number of assignments	9	9	9	13	38	13	38	13	38	13	38	9	27	38	12	27	38	28	28	28			
Input functions																							
Switching																							
Switching ON/OFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Switching OVER	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	✓	--	✓	✓	✓	✓	✓		
Pushbutton function (bell function)	--	--	--	--	✓	--	✓	--	✓	--	✓	--	✓	✓	✓	--	✓	✓	✓	✓	✓		
Dimming																							
Dimming with stop telegram (4-bit) Short button press, ON/OFF Long button press, BRIGHTER/DARKER	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	✓	--	✓	✓	✓	✓	✓		
Dimming with cyclic transmission (4-bit) Short button press, ON/OFF Long button press, BRIGHTER/DARKER	--	--	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	✓	--	✓	✓	✓	✓		
One-pushbutton dimming	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	✓	✓	✓	
Value transmission																							
Value transmission (8-bit)	✓	✓	✓	✓	✓	✓	✓	--	✓	--	✓	--	✓	✓	✓	--	✓	✓	✓	✓	✓		
Shutter/blind																							
Shutter/blind control Short button press, slat OPEN/CLOSED or STOP Long button press, UP/DOWN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	✓	--	✓	✓	✓	✓		
One-pushbutton operation	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	✓	✓	✓	
Scene																							
Store and call up scene, 8-bit	2	4	6	2	2	4	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Store and call up scene, 1-bit in conjunction with scene module	2	4	6	2	2	4	4	--	2	--	4	--	--	8	--	--	8	1	2	4			
Short or long button press (store/call up scene), configurable	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	✓	--	✓	✓	✓	✓		
Status																							
Display of any status objects (1-bit)	--	--	--	✓	✓	--	✓	✓	✓	--	✓	--	--	✓	--	--	✓	✓	✓	✓	✓		
Display of pushbutton objects	--	--	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	✓	--	✓	✓	✓	✓		

Pushbuttons

Selection and ordering data

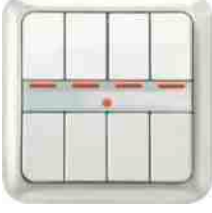
Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
i-system					Unit(s)	Unit(s)		
	UP 221	UP 221 pushbuttons¹⁾²⁾ Single, neutral • Electrical white • Titanium white • Carbon metallic • Aluminum metallic	DT B ► B A	5WG1 221-2AB01 5WG1 221-2AB11 5WG1 221-2AB21 5WG1 221-2AB31	1	1	022	0.025
					1	1	022	0.025
					1	1	022	0.025
					1	1	022	0.025
					1	1	022	0.025
5WG1 221-2AB11								
	UP 222	UP 222 pushbuttons¹⁾²⁾ Double, neutral • Electrical white • Titanium white • Carbon metallic • Aluminum metallic	DT B ► B A	5WG1 222-2AB01 5WG1 222-2AB11 5WG1 222-2AB21 5WG1 222-2AB31	1	1	022	0.025
					1	1	022	0.025
					1	1	022	0.025
					1	1	022	0.025
					1	1	022	0.025
5WG1 222-2AB11								
	UP 223	UP 223 pushbuttons¹⁾²⁾ Triple, neutral • Electrical white • Titanium white • Carbon metallic • Aluminum metallic	DT B ► B A	5WG1 223-2AB01 5WG1 223-2AB11 5WG1 223-2AB21 5WG1 223-2AB31	1	1	022	0.025
					1	1	022	0.025
					1	1	022	0.025
					1	1	022	0.025
					1	1	022	0.025
5WG1 223-2AB11								
	UP 221E	UP 221E pushbuttons¹⁾²⁾ Single, with status LED, neutral • Electrical white • Titanium white • Carbon metallic • Aluminum metallic	DT B ► B A	5WG1 221-2EB01 5WG1 221-2EB11 5WG1 221-2EB21 5WG1 221-2EB31	1	1	022	0.025
					1	1	022	0.048
					1	1	022	0.025
					1	1	022	0.025
					1	1	022	0.025
5WG1 221-2EB11								
	UP 222E	UP 222E pushbuttons¹⁾²⁾ Double, with status LED, neutral • Electrical white • Titanium white • Carbon metallic • Aluminum metallic	DT B ► B A	5WG1 222-2EB01 5WG1 222-2EB11 5WG1 222-2EB21 5WG1 222-2EB31	1	1	022	0.025
					1	1	022	0.048
					1	1	022	0.025
					1	1	022	0.025
					1	1	022	0.025
5WG1 222-2EB11								

¹⁾ The bus coupling unit must be ordered separately.

²⁾ The matching design frame must be ordered separately.

Display, Operation

Pushbuttons

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
DELTA profil					Unit(s)	Unit(s)		
	UP 241	UP 241 pushbuttons ¹⁾²⁾						
		Single, neutral						
		• Pearl gray		B	5WG1 241-2AB01	1	1	022 0.036
		• Titanium white		►	5WG1 241-2AB11	1	1	022 0.036
		• Anthracite		B	5WG1 241-2AB21	1	1	022 0.036
• Silver		A	5WG1 241-2AB71	1	1	022 0.036		
5WG1 241-2AB11								
	UP 242	UP 242 pushbuttons ¹⁾²⁾						
		Single, with I/O symbols						
		• Pearl gray		B	5WG1 242-2AB01	1	1	022 0.036
		• Titanium white		B	5WG1 242-2AB11	1	1	022 0.036
		• Anthracite		B	5WG1 242-2AB21	1	1	022 0.036
• Silver		B	5WG1 242-2AB71	1	1	022 0.036		
5WG1 242-2AB11								
	UP 243	UP 243 pushbuttons ¹⁾²⁾						
		Double, neutral						
		• Pearl gray		B	5WG1 243-2AB01	1	1	022 0.036
		• Titanium white		►	5WG1 243-2AB11	1	1	022 0.036
		• Anthracite		B	5WG1 243-2AB21	1	1	022 0.036
• Silver		A	5WG1 243-2AB71	1	1	022 0.036		
5WG1 243-2AB11								
	UP 244	UP 244 pushbuttons ¹⁾²⁾						
		Double, with I/O symbols						
		• Pearl gray		B	5WG1 244-2AB01	1	1	022 0.036
		• Titanium white		►	5WG1 244-2AB11	1	1	022 0.036
		• Anthracite		B	5WG1 244-2AB21	1	1	022 0.036
• Silver		B	5WG1 244-2AB71	1	1	022 0.036		
5WG1 244-2AB11								
	UP 245	UP 245 pushbuttons ¹⁾²⁾						
		Quadruple, neutral						
		• Pearl gray		B	5WG1 245-2AB01	1	1	022 0.036
		• Titanium white		►	5WG1 245-2AB11	1	1	022 0.036
		• Anthracite		B	5WG1 245-2AB21	1	1	022 0.036
• Silver		A	5WG1 245-2AB71	1	1	022 0.036		
5WG1 245-2AB11								
	UP 246	UP 246 pushbuttons ¹⁾²⁾						
		Quadruple, with I/O symbols						
		• Pearl gray		B	5WG1 246-2AB01	1	1	022 0.036
		• Titanium white		►	5WG1 246-2AB11	1	1	022 0.036
		• Anthracite		B	5WG1 246-2AB21	1	1	022 0.036
• Silver		B	5WG1 246-2AB71	1	1	022 0.036		
5WG1 246-2AB11								

¹⁾ The bus coupling unit must be ordered separately.

²⁾ The matching design frame must be ordered separately.

Pushbuttons

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
DELTA style								
	UP 285 UP 285 pushbuttons ¹⁾²⁾ Single, neutral - Titanium white - Basalt black - Platinum metallic							
		▶	5WG1 285-2AB11	1	1	022	0.036	
		B	5WG1 285-2AB21	1	1	022	0.036	
		B	5WG1 285-2AB41	1	1	022	0.036	
5WG1 285-2AB11								
	UP 286 UP 286 pushbuttons ¹⁾²⁾ Double, neutral - Titanium white - Basalt black - Platinum metallic							
		▶	5WG1 286-2AB11	1	1	022	0.036	
		B	5WG1 286-2AB21	1	1	022	0.036	
		B	5WG1 286-2AB41	1	1	022	0.036	
5WG1 286-2AB11								
	UP 287 UP 287 pushbuttons ¹⁾²⁾ Quadruple, neutral - Titanium white - Basalt black - Platinum metallic							
		▶	5WG1 287-2AB11	1	1	022	0.036	
		B	5WG1 287-2AB21	1	1	022	0.036	
		B	5WG1 287-2AB41	1	1	022	0.036	
5WG1 287-2AB11								
DELTA ambiente								
	UP 284 UP 284 pushbuttons ¹⁾²⁾ (to be discontinued) Quadruple - Arctic white/arctic white - Arctic white/steel							
		B	5WG1 284-2AB01	1	1	022	0.035	
		B	5WG1 284-2AB03	1	1	022	0.035	
		5WG1 284-2AB01						
DELTA millennium								
	IKE 281 IKE 281 pushbuttons, single, for channel installation	D	5WG1 281-8AB01		1	1	030	0.356
	IKE 282 IKE 282 pushbuttons, double, for channel installation	D	5WG1 282-8AB01		1	1	030	0.362
	IKE 283 IKE 283 pushbuttons, quadruple, for channel installation	D	5WG1 283-8AB01		1	1	030	0.360
	Note: The text for the labeling field and the symbol for the pushbutton are engraved. Please specify the text and symbols you require when placing your order (see page 1/33 "Ordering data").							
5WG1 283-8AB01								

1) The bus coupling unit must be ordered separately.

2) The matching design frame must be ordered separately.

Display, Operation

Pushbuttons for DELTA bus coupling units

Technical specifications

				
Type	UP 116	UP 116/11	UP 116/21	UP 116/31
Application program	211001	221001	210F01	220F01
Enclosure data				
For installation in flush-mounting switch and socket boxes with Ø = 60 mm and depth = 60 mm	✓	✓	✓	✓
Dimensions				
• Height	mm 71	71	71	71
• Width	mm 71	71	71	71
• Depth	mm 32	32	32	32
Mounting type				
Claw fixing	✓	✓	✓	✓
Screw fixing	✓	✓	✓	✓
Display/control elements				
LED per pushbutton pair for status indication or configurable as orientation light	1	1	1	1
Mounting of rockers from the DELTA product ranges	✓	✓	✓	✓
Rocker button, intermediate position (pushbutton with 2 operating points)	1	2	--	--
Rocker button, pushbutton position (pushbutton with 1 operating point)	--	--	1	2
Bus connection				
Integrated bus coupling units	✓	✓	✓	✓
General functions				
Max. number of group addresses	4	8	3	4
Max. number of assignments	4	8	3	5
Input functions				
Switching				
Switching ON/OFF	✓	✓	✓	✓
Switching OVER	✓	✓	✓	✓
Dimming				
Dimming with stop telegram (4-bit) Short button press, ON/OFF Long button press, BRIGHTER/DARKER	✓	✓	--	✓
Dimming with cyclic transmission (4-bit) Short button press, ON/OFF Long button press, BRIGHTER/DARKER	✓	✓	--	✓
Shutter/blind				
Shutter/blind control Short button press, slat OPEN/CLOSED or STOP Long button press, UP/DOWN	✓	✓	--	✓
Scene				
Store and call up scene, 1-bit in conjunction with scene module	1	2	--	--
Short or long button press (store/call up scene), configurable	✓	✓	--	--
Status				
Display of any status objects (1-bit)	✓	--	--	--
Display of pushbutton objects	✓	--	✓	✓

For selection and ordering data, see page 1/9.

Pushbuttons for DELTA bus coupling units

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
	UP 116 UP 116/21	DELTA UP 116 bus coupling units¹⁾						
		Single						
		• Intermediate position • Pushbutton position						
		▶	5WG1 116-2AB01		1	1	030	0.080
		▶	5WG1 116-2AB21		1	1	030	0.080
5WG1 116-2AB01								
	UP 116/11 UP 116/31	DELTA UP 116 bus coupling units¹⁾						
		Double						
		• Intermediate position • Pushbutton position						
		▶	5WG1 116-2AB11		1	1	030	0.080
		▶	5WG1 116-2AB31		1	1	030	0.080
5WG1 116-2AB11								

5WG1 116-2AB11

¹⁾ The required single or multiple rocker (with or without window) and the frame in matching DELTA design (see [Catalog ET D1](#)) must be ordered separately.

Display, Operation

Surface-mounting pushbuttons, IP44

Technical specifications

				
Type	AP 115	AP 115/11	AP 115/21	AP 115/31
Application program	211001	221001	210F01	220F01
Enclosure data				
Surface-mounting enclosures	✓	✓	✓	✓
Degree of protection	IP44	IP44	IP44	IP44
Dimensions				
• Height	mm 75	75	75	75
• Width	mm 66	66	66	66
• Depth	mm 52	52	52	52
Display/control elements				
LED per pushbutton pair for status indication or configurable as orientation light	1	--	1	--
Rocker button, intermediate position (pushbutton with 2 operating points)	1	2	--	--
Rocker button, pushbutton position (pushbutton with 1 operating point)	--	--	1	2
Bus connection				
Integrated bus coupling units	✓	✓	✓	✓
General functions				
Max. number of group addresses	4	8	3	4
Max. number of assignments	4	8	3	5
Input functions				
Switching				
Switching ON/OFF	✓	✓	✓	✓
Switching OVER	✓	✓	✓	✓
Dimming				
Dimming with stop telegram (4-bit) Short button press, ON/OFF Long button press, BRIGHTER/DARKER	✓	✓	--	✓
Dimming with cyclic transmission (4-bit) Short button press, ON/OFF Long button press, BRIGHTER/DARKER	✓	✓	--	✓
Shutter/blind				
Shutter/blind control Short button press, slat OPEN/CLOSED or STOP Long button press, UP/DOWN	✓	✓	--	✓
Scene				
Store and call up scene, 1-bit in conjunction with scene module	1	2	--	--
Short or long button press (store/call up scene), configurable	✓	✓	--	--
Status				
Display of any status objects (1-bit)	✓	--	--	--
Display of pushbutton objects	✓	--	✓	✓

For selection and ordering data, see page 1/11.

Surface-mounting pushbuttons, IP44

Selection and ordering data

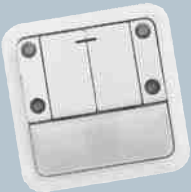
Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
	AP 115 AP 115/21 AP 115 pushbuttons Single, IP44 • Intermediate position • Pushbutton position				Unit(s)	Unit(s)		
		▶	5WG1 115-3AB01		1	1	022	0.080
		▶	5WG1 115-3AB21		1	1	022	0.080
5WG1 115-3AB01								
	AP 115/11 AP 115/31 AP 115 pushbuttons Double, IP44 • Intermediate position • Pushbutton position							
		▶	5WG1 115-3AB11		1	1	022	0.080
		▶	5WG1 115-3AB31		1	1	022	0.080
5WG1 115-3AB11								

Display, Operation

Multifunction Pushbuttons

Introduction

Overview

Devices		Application	Page
	Pushbuttons with room temperature controllers	Pushbuttons with integrated room temperature controller in designs DELTA profil and DELTA style	1/13
	Pushbuttons with motion detectors	Pushbuttons with integrated motion detectors in designs DELTA profil and DELTA style	1/15
	Pushbuttons with IR receiver	Pushbuttons with IR receiver pass on commands from the remote control.	1/16

Pushbuttons with room temperature controllers

Technical specifications

Type	Description
 UP 231/3	UP 231/3 pushbuttons • Vertical operation • Two wide inner rocker buttons • Function can be user-assigned: switching OVER, switching ON/OFF, switching ON/OFF and dimming, shutter/blind, value transmission, store and call up scenes of up to four 1-bit scenes in conjunction with scene module • Short and long button press for ON/OFF/OVER, BRIGHTER/DARKER for dimming, and UP/DOWN and adjustment of slats for shutter/blind control • Operation/status indication over one LED per rocker button • Integrated room temperature sensors and controllers for heating only, cooling only or combined heating/cooling • Control over an algorithm for adaptive control and/or a two-point algorithm • With monitoring of room temperature over a room temperature sensor integrated in the controller and an external room temperature sensor connected to the KNX, and with adjustable weighting between the measured indoor and outdoor temperature • Two narrow outer rocker buttons for setpoint offsetting in comfort mode and one for switching between comfort and standby mode • Operating modes that can be switched over KNX: comfort mode, standby mode, night mode, frost or heat protection mode, with adjustable offset of the room temperature setpoint for comfort mode • Adjustable dead zone, selectable either symmetric to the setpoint for comfort mode or between the heating and cooling setpoint for comfort mode • Selectable sequence control for heating and cooling mode (required e.g. for the combination of floor and radiator heating) • Output of the control variable(s) either as ON/OFF switch command or as positioning command in the range 0 % ... 100 %, with LEDs for the indication of the current operating mode and setpoint offsetting • For plugging onto a UP 114 bus coupling unit • Dimensions (H x W x D): 65 x 65 x 15 mm
 UP 252H	UP 252H multifunction controllers • For direct control of the valves and the fan of the fan coil or a split unit • Preselection of the required control function of directly connected heaters/refrigerators using the ETS • Integrated room temperature sensors • P or PI control of the room temperature for heating, cooling or heating and cooling mode • For adjustment of comfort, pre-comfort, night and protection modes over the bus • Adjustment of temperature setpoint for comfort mode • Adjustment of temperature setpoints over the ETS for all other operating modes • Fixed dead zone (1K) between heating and cooling in comfort mode • Presence pushbutton to locally switch over between comfort and pre-comfort and for extending comfort mode through activation of the night mode • Pulse-width modulated control signal output • Eight operator buttons for the manual adjustment of the comfort temperature setpoint, for the selection of the operating mode and ventilator speed step and the ON/OFF switching of a load (e.g. room lighting) • A red status LED per operator button • An LCD with three digits for the representation of the current setpoint or room temperature • A binary input for the direct connection of a floating window contact • A binary input for 12 V DC for the direct connection of a presence detector • An analog input for the optional connection of a temperature sensor mounted in the intake air flow of a ventilator convactor (NTC sensor, 10 kOhm at 25 °C). • Five binary outputs 24 V AC (relay contacts for 2 A, p.f. = 1) for the control of electrothermal valve actuators, for the switching of ventilator speed steps, etc. depending on the configured application. • Integrated bus coupling units • Bus connection via bus terminal • Integrated power supply for 24 V AC • Double hanging bracket for mounting on two combined hollow-wall or flush-mounting boxes with at least Ø 58 mm and at least 40 mm depth or an equivalent double flush mounting box

Display, Operation

Multifunction Pushbuttons

Pushbuttons with room temperature controllers

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
Unit(s)Unit(s)								
DELTA profil								
	UP 231/3	UP 231/3 pushbuttons¹⁾²⁾³⁾						
		Double, with adaptive room temperature controller						
		• Pearl gray • Titanium white • Anthracite • Silver		B	5WG1 231-2AB03	1	1	022 0.036
				B	5WG1 231-2AB13	1	1	022 0.036
				B	5WG1 231-2AB23	1	1	022 0.036
				B	5WG1 231-2AB73	1	1	022 0.036
DELTA style								
	UP 231/3	UP 231E pushbuttons¹⁾²⁾³⁾						
		Double, with adaptive room temperature controller						
		• Titanium white • Basalt black		B	5WG1 231-2EB13	1	1	022 0.036
				B	5WG1 231-2EB23	1	1	022 0.036
Design-independent								
	UP 252H	UP 252H multifunction controllers		 C	5WG1 252-2HV11	1	1	030 0.225

5WG1 252-2HV11

- 1) The bus coupling unit must be ordered separately.
 2) The matching design frame must be ordered separately.
 3) The pictographs must be ordered separately, [see page 1/32](#).

Pushbuttons with motion detectors

Technical specifications

Type	Description
 UP 230	UP 230 pushbuttons - Vertical operation - Four rocker buttons - Function can be user-assigned: switching ON/OFF/OVER, switching ON/OFF/OVER and dimming, shutter/blind, value transmission, store and call up scenes of up to eight 1-bit scenes in conjunction with scene module - Short and long button press for ON/OFF/OVER, BRIGHTER/DARKER for dimming, and UP/DOWN and adjustment of slats for shutter/blind control - Operation/status indication over one LED each for the middle rocker buttons and over two LEDs each for the outer rocker buttons - With LED windows in the outer rocker buttons for the insertion of pictographs - With integrated motion detector and brightness sensor, transmission of brightness value over KNX - Motion detector with operation either dependent on and/or independent of brightness - With brightness operating point adjustable in various steps - Adjustable sensing range 90° or 180° - Adjustable cyclic transmission time - Integrated LED for indication of detected movements - For plugging onto a UP 110 or UP 114 bus coupling unit - Dimensions (H x W x D): 65 x 65 x 17 mm.

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
DELTA profil								
	UP 230	UP 230 pushbuttons¹⁾²⁾³⁾						
		Quadruple, with motion detectors						
		- Pearl gray - Titanium white - Anthracite - Silver	B	5WG1 230-2AB02	1	1	022	0.036
			B	5WG1 230-2AB12	1	1	022	0.036
			B	5WG1 230-2AB22	1	1	022	0.036
			B	5WG1 230-2AB72	1	1	022	0.036
DELTA style								
	UP 230E	UP 230E pushbuttons¹⁾²⁾³⁾						
		Quadruple, with motion detectors						
		- Titanium white - Basalt black	B	5WG1 230-2EB11	1	1	022	0.036
			B	5WG1 230-2EB21	1	1	022	0.036

5WG1 230-2AB12

5WG1 230-2EB11

¹⁾ The bus coupling unit must be ordered separately.

²⁾ The matching design frame must be ordered separately.

³⁾ The pictographs must be ordered separately, [see page 1/32](#).

Display, Operation

Multifunction Pushbuttons

Pushbuttons with IR receiver

Overview

The flush-mounting UP pushbuttons with IR receivers use the UP 114 bus coupling unit and an application program to carry out actions, such as issuing commands to actuators for defined

ON/OFF switching or for dimming lighting, for the raising/lowering of shutters/blinds, adjustment of slats or other configurable functional units.

Technical specifications

Design	DELTA profil			DELTA style			DELTA ambiente
							
Type	UP 233	UP 234	UP 235	UP 285E	UP 286E	UP 287E	UP 284E
Application program	900B02						
Display/control elements							
Individual pushbuttons	2	4	8	2	4	8	8
Pushbutton pairs	1	2	4	1	2	4	4
Operation (v: vertical, h: horizontal)	v	v	v	v	v	v	v
LED per pushbutton pair for status indication or configurable as orientation light	✓	✓	✓	✓	✓	✓	✓
Separate LED for orientation light (ON/OFF configurable)	--	--	--	--	--	--	✓
Labeling field	✓	✓	✓	✓	✓	✓	--
Pictographs supplied	--	--	--	--	--	--	✓
Bus connection							
Plug onto UP 114 bus coupling unit	✓	✓	✓	✓	✓	✓	✓
Inputs							
IR receiver/decoder	✓	✓	✓	✓	✓	✓	✓
Integration of 14 further pushbutton pairs of IR hand-held/wall-mounted transmitters	✓	✓	✓	✓	✓	✓	✓
General functions							
Max. number of group addresses	39	39	39	39	39	39	39
Max. number of assignments	40	40	40	40	40	40	40
Input functions							
Switching							
Switching ON/OFF	✓	✓	✓	✓	✓	✓	✓
Switching OVER	✓	✓	✓	✓	✓	✓	✓
Pushbutton function (bell function)	✓	✓	✓	✓	✓	✓	✓
Dimming							
Dimming with stop telegram (4-bit) Short button press, ON/OFF Long button press, BRIGHTER/DARKER	✓	✓	✓	✓	✓	✓	✓
Dimming with cyclic transmission (4-bit) Short button press, ON/OFF Long button press, BRIGHTER/DARKER	✓	✓	✓	✓	✓	✓	✓
Value transmission							
Value transmission (8-bit)	✓	✓	✓	✓	✓	✓	✓
Shutter/blind							
Shutter/blind control Short button press, slat OPEN/CLOSED or STOP Long button press, UP/DOWN	✓	✓	✓	✓	✓	✓	✓
Scene							
Store and call up scene, 1-bit in conjunction with scene module	2	4	8	2	4	8	8
Short or long button press (store/call up scene), configurable	✓	✓	✓	✓	✓	✓	✓
Status							
Display of any status objects (1-bit)	✓	✓	✓	✓	✓	✓	✓
Display of pushbutton objects	✓	✓	✓	✓	✓	✓	✓

For selection and ordering data, see page 1/17.

Pushbuttons with IR receiver

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx.	
					Unit(s)	Unit(s)		kg	
DELTA profil									
	UP 233	UP 233 pushbuttons ¹⁾²⁾							
		Single, with IR receiver, neutral							
			• Pearl gray	B	5WG1 233-2AB01	1	1	022	0.038
			• Titanium white	B	5WG1 233-2AB11	1	1	022	0.038
			• Anthracite	B	5WG1 233-2AB21	1	1	022	0.038
	• Silver	B	5WG1 233-2AB71	1	1	022	0.038		
5WG1 233-2AB11									
	UP 234	UP 234 pushbuttons ¹⁾²⁾							
		Double, with IR receiver, neutral							
			• Pearl gray	B	5WG1 234-2AB01	1	1	022	0.038
			• Titanium white	B	5WG1 234-2AB11	1	1	022	0.038
			• Anthracite	B	5WG1 234-2AB21	1	1	022	0.038
	• Silver	B	5WG1 234-2AB71	1	1	022	0.038		
5WG1 234-2AB11									
	UP 235	UP 235 pushbuttons ¹⁾²⁾							
		Quadruple, with IR receiver, neutral							
			• Pearl gray	B	5WG1 235-2AB01	1	1	022	0.038
			• Titanium white	B	5WG1 235-2AB11	1	1	022	0.038
			• Anthracite	B	5WG1 235-2AB21	1	1	022	0.038
	• Silver	B	5WG1 235-2AB71	1	1	022	0.038		
5WG1 235-2AB11									
DELTA style									
	UP 285E	UP 285E pushbuttons ¹⁾²⁾							
		Single, with IR receiver, neutral							
			• Titanium white	C	5WG1 285-2EB11	1	1	022	0.038
			• Basalt black	B	5WG1 285-2EB21	1	1	022	0.055
			• Platinum metallic	B	5WG1 285-2EB41	1	1	022	0.055
5WG1 285-2EB11									
	UP 286E	UP 286E pushbuttons ¹⁾²⁾							
		Double, with IR receiver, neutral							
			• Titanium white	C	5WG1 286-2EB11	1	1	022	0.038
			• Basalt black	B	5WG1 286-2EB21	1	1	022	0.036
			• Platinum metallic	B	5WG1 286-2EB41	1	1	022	0.055
5WG1 286-2EB11									

Display, Operation

Multifunction Pushbuttons

Pushbuttons with IR receiver

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	UP 287E UP 287E pushbuttons¹⁾²⁾ Quadruple, with IR receiver, neutral • Titanium white • Basalt black • Platinum metallic							
		▶	5WG1 287-2EB11	1	1	022	0.038	
		B	5WG1 287-2EB21	1	1	022	0.036	
		B	5WG1 287-2EB41	1	1	022	0.055	
DELTA ambiente								
	UP 284E UP 284E pushbuttons¹⁾²⁾ (to be discontinued) Quadruple, with IR receiver • Arctic white/arctic white • Arctic white/steel							
		B	5WG1 284-2EB01	1	1	022	0.084	
		B	5WG1 284-2EB03	1	1	022	0.084	

5WG1 287-2EB11

5WG1 284-2EB01

5WG1 287-2EB11

5WG1 284-2EB01

¹⁾ The bus coupling unit must be ordered separately.

²⁾ The matching design frame must be ordered separately.

* You can order this quantity or a multiple thereof.

Technical specifications

Type	Description
 UP 587/1 UP 587/2	UP 587/1 text displays Text displays with UP 587/2 timers - Horizontal operation of three pushbutton pairs - Up to nine freely configurable operator functions - Switching ON/OFF, switching OVER - Switching ON/OFF and dimming - Value transmission - Sun protection control - Store and call up 1-bit scenes with the respective scene modules - Store and call up 8-bit scenes, text display, warning and alarm indication - With distinction between short and long button press for dimming, scenes and the control of sun protection equipment - An LCD with two lines, each with 11 characters, which are assigned as a block to the upper two pushbutton pairs - LCD contrast and brightness can be user adjusted - LCD backlighting as orientation light - Four LEDS for switching status indication - Buzzer for acoustic alarm indication - Display and input of date and time - For mounting on UP 117 bus transceiver modules - Dimensions (H x W x D): 55 x 55 x 11 mm UP 587/2 also offers: - Time-controlled switching (weekly switching schedule) for up to 40 time switching commands: Switching ON/OFF, switching ON/OFF and dimming, value transmission, sun protection control, call up of 1-bit and 8-bit scenes - Adjustable time switching commands on the text display
 UP 584 UP 585 UP 586	UP 584, UP 585, UP 586 display/control units - Graphical LCD with a resolution of 132 x 65 pixels - Display of up to 30 characters per line and up to 5 lines (font Arial 12 pt) - Text and special characters uploaded from any Windows fonts and/or freely defined characters and symbols - Display of up to 16 freely configurable indications - Indication text lengths of maximum 3 lines, comprising fixed and variable text parts - Selection of data type for switching for each indication, floating-point value 2/4 byte, percentage value 1 byte, count value 1/2/4 byte, static text, variable text (max. 14 ASCII characters), time or date, with scaling, conversion and text display of values (1/2/4 byte) - Selection of alarm sound output and/or flashing at each alarm indication, with individual acknowledgement of each alarm indication - Operation of up to 16 bus functions, such as switching, changing dimming values, changing position of shutters/blinds and/or slats or changing a temperature setpoint value by changing the displayed status or value - Limit setting and specification of step sizes for the possible transmission values - Set green/yellow display backlighting as permanent, time-controlled or to be switched ON/OFF over the bus - Two pushbuttons for selection of indication to be displayed - Two additional pushbuttons for operation of configurable bus functions - Powered over the bus line (double bus load) - Includes special bus coupling unit - Dimensions (H x W x D): 65 x 65 x 20 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
i-system								
	UP 587/1	UP 587/1 text displays¹⁾²⁾						
		Electrical white	B	5WG1 587-2AB01	1	1	022	0.030
		Titanium white	►	5WG1 587-2AB11	1	1	022	0.030
		Carbon metallic	B	5WG1 587-2AB21	1	1	022	0.030
		Aluminum metallic	A	5WG1 587-2AB31	1	1	022	0.030
	UP 587/2	UP 587/2 text displays with time-controlled switching¹⁾²⁾						
		Electrical white	B	5WG1 587-2AB02	1	1	022	0.030
		Titanium white	►	5WG1 587-2AB12	1	1	022	0.030
		Carbon metallic	B	5WG1 587-2AB22	1	1	022	0.030
		Aluminum metallic	A	5WG1 587-2AB32	1	1	022	0.030
DELTA profil								
	UP 585	UP 585 display/control units¹⁾						
		Pearl gray	B	5WG1 585-2AB01	1	1	022	0.113
		Titanium white	►	5WG1 585-2AB11	1	1	022	0.113
		Anthracite	B	5WG1 585-2AB21	1	1	022	0.113
		Silver	B	5WG1 585-2AB71	1	1	022	0.113

5WG1 587-2AB11
5WG1 587-2AB12

5WG1 585-2AB11

5WG1 585-2AB11

¹⁾ The matching design frame must be ordered separately.²⁾ The bus transceiver module must be ordered separately, see page 14/3.

Display, Operation

Displays

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
DELTA style					Unit(s)	Unit(s)		
	UP 585	UP 585 display/control units¹⁾						
	• Titanium white		▶ 5WG1 585-2AB11		1	1	022	0.113
	UP 584	UP 584 display/control units¹⁾						
	• Basalt black • Platinum metallic	 B B	5WG1 584-2AB21 5WG1 584-2AB41		1 1	1 1	022 022	0.113 0.113
DELTA ambiente								
	UP 586	UP 586 display/control units¹⁾ (to be discontinued)						
	• Arctic white	B	5WG1 586-2AB01		1	1	022	0.113

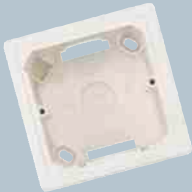
5WG1 585-2AB11

5WG1 586-2AB01

¹⁾ The matching design frame must be ordered separately.

* You can order this quantity or a multiple thereof.

Overview

Devices		Application	Page
	Frames, DELTA design	No matter which frame you require – we have models available in single to quintuple versions.	1/22
	Surface-mounting enclosures	Available in the designs of DELTA line, DELTA profil and DELTA style	1/31
	Pictographs	Offer a clear overview of the functions of multifunction pushbuttons	1/32
	Accessories for trunking systems	It's easy to select modules and accessories for the flexibly designed DELTA millennium.	1/33

Display, Operation

Pushbutton Accessories

DELTA line frames

Technical specifications

- For horizontal and vertical mounting
- Degree of protection IP20

	DELTA line				
	Single	Double	Triple	Quadruple	Quintuple
Dimensions					
• Length	mm 80	151	222	293	364
• Width	mm 80	80	80	80	80

Selection and ordering data

	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
 5TG2 551-0	Frames							
	80 mm							
	• Titanium white (similar to RAL 9010)							
	- Single	►	5TG2 551-0		1	1/10	021	0.013
	- Double	►	5TG2 552-0		1	1/10	021	0.023
	- Triple	►	5TG2 553-0		1	1/10	021	0.033
	- Quadruple	►	5TG2 554-0		1	1/10	021	0.044
	- Quintuple	A	5TG2 555-0		1	1/5	021	0.055
	• Electrical white (RAL 1013)							
	- Single	►	5TG2 581-0		1	1/10	021	0.013
	- Double	►	5TG2 582-0		1	1/10	021	0.023
	- Triple	►	5TG2 583-0		1	1/10	021	0.033
	- Quadruple	A	5TG2 584-0		1	1/10	021	0.044
	- Quintuple	A	5TG2 585-0		1	1/5	021	0.055
	• Titanium white (similar to RAL 9006)							
	- Single	►	5TG2 551-3		1	1/10	021	0.015
	- Double	►	5TG2 552-3		1	1/10	021	0.026
	- Triple	►	5TG2 553-3		1	1/10	021	0.038
	- Quadruple	►	5TG2 554-3		1	1/10	021	0.050
	- Quintuple	A	5TG2 555-3		1	1/5	021	0.063
	• Carbon metallic (similar to RAL 7016)							
	- Single	►	5TG2 551-6		1	1/10	021	0.015
	- Double	►	5TG2 552-6		1	1/10	021	0.026
	- Triple	A	5TG2 553-6		1	1/10	021	0.038
	- Quadruple	A	5TG2 554-6		1	1/10	021	0.050
	- Quintuple	A	5TG2 555-6		1	1/5	021	0.063
 5TG2 551-1	Frames							
	80 mm, with labeling field ¹⁾							
	• Titanium white (similar to RAL 9010)							
	- Single	A	5TG2 551-1		1	1/10	021	0.016
	- Double, horizontal	A	5TG2 552-1		1	1/10	021	0.028
	- Double, vertical	A	5TG2 552-2		1	1/10	021	0.028
	- Triple, horizontal	►	5TG2 553-1		1	1/10	021	0.041
	- Triple, vertical	A	5TG2 553-2		1	1/10	021	0.041
	- Quadruple, horizontal	A	5TG2 554-1		1	1/10	021	0.054
	- Quadruple, vertical	A	5TG2 554-2		1	1/10	021	0.054
	• Electrical white (RAL 1013)							
	- Single	A	5TG2 581-1		1	1/10	021	0.019
	- Double, horizontal	A	5TG2 582-1		1	1/10	021	0.028
	- Double, vertical	A	5TG2 582-2		1	1/10	021	0.028
	- Triple, horizontal	A	5TG2 583-1		1	1/10	021	0.041
	- Triple, vertical	A	5TG2 583-2		1	1/10	021	0.041
	- Quadruple, horizontal	A	5TG2 584-1		1	1/10	021	0.054
	- Quadruple, vertical	A	5TG2 584-2		1	1/10	021	0.054
	• Titanium white (similar to RAL 9006)							
	- Single	A	5TG2 551-4		1	1/10	021	0.017
	- Double, horizontal	A	5TG2 552-4		1	1/10	021	0.031
	- Double, vertical	A	5TG2 552-5		1	1/10	021	0.031
	• Carbon metallic (similar to RAL 7016)							
	- Single	A	5TG2 551-7		1	1/10	021	0.017
	- Double, horizontal	A	5TG2 552-7		1	1/10	021	0.031
	- Double, vertical	A	5TG2 552-8		1	1/10	021	0.031

¹⁾ You can create individual labels with our free labeling tool.
Download at: <http://www.siemens.com/labeling-tool>

Technical specifications

Frames

- For horizontal and vertical mounting
- Degree of protection IP20

Note:

Frames can only be used with color elements, see Introduction.

Color elements

- For horizontal and vertical mounting
- Degree of protection IP20
- Size of color elements: 62 mm x 62 mm
- For installing in frames

	DELTA vita				
	Single	Double	Triple	Quadruple	Quintuple
Dimensions					
• Length	mm 83	154	225	296	367
• Width	mm 83	83	83	83	83

Selection and ordering data

	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
 5TG1 141	Frames							
	83 mm							
	• Titanium white (similar to RAL 9010)							
	- Single	►	5TG1 141		1	1/10	021	0.012
	- Double	►	5TG1 142		1	1/10	021	0.019
	- Triple	A	5TG1 143		1	1/10	021	0.027
	- Quadruple	A	5TG1 144		1	1/10	021	0.041
	- Quintuple	A	5TG1 145		1	1/5	021	0.065
	• Titanium white (similar to RAL 9006)							
	- Single	►	5TG1 161		1	1/10	021	0.014
	- Double	►	5TG1 162		1	1/10	021	0.022
	- Triple	A	5TG1 163		1	1/10	021	0.031
	- Quadruple	A	5TG1 164		1	1/10	021	0.046
	- Quintuple	A	5TG1 165		1	1/5	021	0.071
	• Carbon metallic (similar to RAL 7016)							
	- Single	►	5TG1 151		1	1/10	021	0.014
	- Double	A	5TG1 152		1	1/10	021	0.022
	- Triple	A	5TG1 153		1	1/10	021	0.031
	- Quadruple	A	5TG1 154		1	1/10	021	0.046
	- Quintuple	A	5TG1 155		1	1/5	021	0.071
	• Gold (similar to RAL 1036)							
	- Single	►	5TG1 171		1	1/10	021	0.014
	- Double	►	5TG1 172		1	1/10	021	0.022
	- Triple	A	5TG1 173		1	1/10	021	0.031
	- Quadruple	A	5TG1 174		1	1/10	021	0.046
	- Quintuple	A	5TG1 175		1	1/5	021	0.071
 5TG1 178	Color elements							
	• Titanium white (similar to RAL 9010)	►	5TG1 178		1	1/10	021	0.008
	• Yellow (similar to RAL 1021)	A	5TG1 188-1		1	1/10	021	0.008
	• Green (translucent)	►	5TG1 182		1	1/10	021	0.008
	• Orange (translucent)	A	5TG1 183		1	1/10	021	0.008
	• Red (translucent)	A	5TG1 184		1	1/10	021	0.008
	• Blue (translucent)	►	5TG1 185		1	1/10	021	0.008
	• Dark red (painted)	►	5TG1 186		1	1/10	021	0.009
	• Dark blue (painted)	A	5TG1 187		1	1/10	021	0.009
	• Platinum (galvanized, matt)	►	5TG1 177		1	1/10	021	0.009
	• Chrome (galvanized, polished)	►	5TG1 181		1	1/10	021	0.009
	• Gold (galvanized, polished)	►	5TG1 180		1	1/10	021	0.009

Display, Operation

Pushbutton Accessories

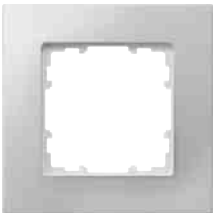
DELTA miro color frames

Technical specifications

- For horizontal and vertical mounting
- Degree of protection IP20

		DELTA miro				
		Single	Double	Triple	Quadruple	Quintuple
Dimensions	• Length	mm 90	161	232	303	374
	• Width	mm 90	90	90	90	90

Selection and ordering data

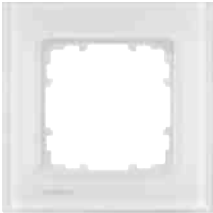
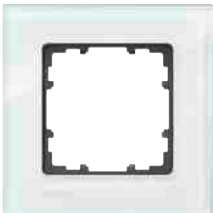
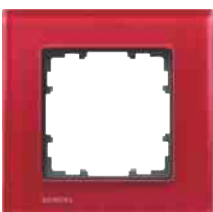
Version		DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
Frames								
90 mm, plastic								
	• Titanium white (similar to RAL 9010)							
	- Single	▶	5TG1 111-0		1	1/10	021	0.022
	- Double	A	5TG1 112-0		1	1/10	021	0.035
	- Triple	A	5TG1 113-0		1	1/10	021	0.046
	- Quadruple	A	5TG1 114-0		1	1/10	021	0.060
	- Quintuple	A	5TG1 115-0		1	1/3	021	0.100
5TG1 111-0								
	• Titanium white (similar to RAL 9006)							
	- Single	▶	5TG1 111-1		1	1/10	021	0.022
	- Double	A	5TG1 112-1		1	1/10	021	0.035
	- Triple	▶	5TG1 113-1		1	1/10	021	0.046
	- Quadruple	A	5TG1 114-1		1	1/10	021	0.060
	- Quintuple	A	5TG1 115-1		1	1/3	021	0.100
5TG1 111-1								
	• Carbon metallic (similar to RAL 7016)							
	- Single	A	5TG1 111-2		1	1/10	021	0.022
	- Double	A	5TG1 112-2		1	1/10	021	0.035
	- Triple	A	5TG1 113-2		1	1/10	021	0.046
	- Quadruple	A	5TG1 114-2		1	1/10	021	0.060
	- Quintuple	A	5TG1 115-2		1	1/3	021	0.100
5TG1 111-2								

Technical specifications

- For horizontal and vertical mounting
- Degree of protection IP20

		DELTA miro glass				
		Single	Double	Triple	Quadruple	Quintuple
Dimensions	• Length	mm 90	161	232	303	374
	• Width	mm 90	90	90	90	90

Selection and ordering data

Version		DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
Frames								
90 mm, real glass								
	• Crystal green							
	- Single	►	5TG1 201		1	1	021	0.197
	- Double	►	5TG1 202		1	1	021	0.243
	- Triple	►	5TG1 203		1	1	021	0.305
	- Quadruple	►	5TG1 204		1	1	021	0.370
	- Quintuple	►	5TG1 205		1	1	021	0.480
5TG1 201								
	• White							
	- Single	►	5TG1 201-1		1	1	021	0.097
	- Double	►	5TG1 202-1		1	1	021	0.157
	- Triple	►	5TG1 203-1		1	1	021	0.220
	- Quadruple	►	5TG1 204-1		1	1	021	0.282
	- Quintuple	►	5TG1 205-1		1	1	021	0.480
5TG1 201-1								
	• Black							
	- Single	►	5TG1 201-2		1	1	021	0.097
	- Double	►	5TG1 202-2		1	1	021	0.157
	- Triple	►	5TG1 203-2		1	1	021	0.220
	- Quadruple	►	5TG1 204-2		1	1	021	0.282
	- Quintuple	►	5TG1 205-2		1	1	021	0.480
5TG1 201-2								
	• Orient							
	- Single	►	5TG1 201-3		1	1	021	0.197
	- Double	►	5TG1 202-3		1	1	021	0.243
	- Triple	►	5TG1 203-3		1	1	021	0.305
	- Quadruple	►	5TG1 204-3		1	1	021	0.370
	- Quintuple	►	5TG1 205-3		1	1	021	0.480
5TG1 201-3								
	• Arena	NEW						
	- Single	►	5TG1 201-4		1	1	021	0.197
	- Double	►	5TG1 202-4		1	1	021	0.243
	- Triple	►	5TG1 203-4		1	1	021	0.305
	- Quadruple	►	5TG1 204-4		1	1	021	0.370
	- Quintuple	►	5TG1 205-4		1	1	021	0.480
5TG1 201-4								

* You can order this quantity or a multiple thereof.

Display, Operation

Pushbutton Accessories

DELTA miro real wood frames

Technical specifications

- For horizontal and vertical mounting
- Degree of protection IP20

Note:

Variations in the color of the wood are typical of natural products.

	DELTA miro				
	Single	Double	Triple	Quadruple	Quintuple
Dimensions					
• Length	mm 90	161	232	303	374
• Width	mm 90	90	90	90	90

Selection and ordering data

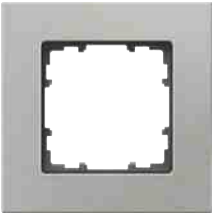
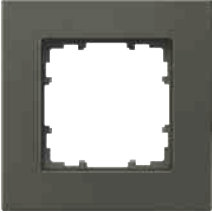
Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
				Unit(s)	Unit(s)		kg
Frames							
90 mm, real wood							
		► 5TG1 101-2		1	1	021	0.037
	A	5TG1 102-2		1	1	021	0.057
	A	5TG1 103-2		1	1	021	0.081
	A	5TG1 104-2		1	1	021	0.104
5TG1 101-2							
		► 5TG1 101-3		1	1	021	0.037
		► 5TG1 102-3		1	1	021	0.057
	A	5TG1 103-3		1	1	021	0.081
	A	5TG1 104-3		1	1	021	0.104
5TG1 101-3							
		► 5TG1 101-4		1	1	021	0.037
		► 5TG1 102-4		1	1	021	0.057
	A	5TG1 103-4		1	1	021	0.081
	A	5TG1 104-4		1	1	021	0.104
5TG1 101-4							
		► 5TG1 101-1		1	1	021	0.037
		► 5TG1 102-1		1	1	021	0.057
	A	5TG1 103-1		1	1	021	0.081
	A	5TG1 104-1		1	1	021	0.104
5TG1 101-1							
		► 5TG1 101-0		1	1	021	0.037
		► 5TG1 102-0		1	1	021	0.057
	A	5TG1 103-0		1	1	021	0.081
	A	5TG1 104-0		1	1	021	0.104
5TG1 101-0							

Technical specifications

- For horizontal and vertical mounting
- Degree of protection IP20

	DELTA miro				
	Single	Double	Triple	Quadruple	Quintuple
Dimensions					
• Length	mm 90	161	232	303	374
• Width	mm 90	90	90	90	90

Selection and ordering data

Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
				Unit(s)	Unit(s)		kg
Frames 90 mm, real aluminum							
							
	• Natural						
	- Single	▶	5TG1 121-0	1	1	021	0.082
	- Double	▶	5TG1 122-0	1	1	021	0.140
	- Triple	▶	5TG1 123-0	1	1	021	0.190
	- Quadruple	▶	5TG1 124-0	1	1	021	0.243
	- Quintuple	▶	5TG1 125-0	1	1	021	0.290
5TG1 121-0							
	• Titanium						
	- Single	▶	5TG1 121-1	1	1	021	0.082
	- Double	▶	5TG1 122-1	1	1	021	0.140
	- Triple	▶	5TG1 123-1	1	1	021	0.190
	- Quadruple	▶	5TG1 124-1	1	1	021	0.243
	- Quintuple	▶	5TG1 125-1	1	1	021	0.290
5TG1 101-1							
	• Graphite						
	- Single	▶	5TG1 121-2	1	1	021	0.197
	- Double	▶	5TG1 122-2	1	1	021	0.140
	- Triple	▶	5TG1 123-2	1	1	021	0.190
	- Quadruple	▶	5TG1 124-2	1	1	021	0.243
	- Quintuple	▶	5TG1 125-2	1	1	021	0.480
5TG1 101-2							
	• Yellow oxide						
	- Single	▶	5TG1 121-3	1	1	021	0.082
	- Double	▶	5TG1 122-3	1	1	021	0.140
	- Triple	▶	5TG1 123-3	1	1	021	0.190
	- Quadruple	▶	5TG1 124-3	1	1	021	0.370
	- Quintuple	▶	5TG1 125-3	1	1	021	0.290
5TG1 101-3							

Display, Operation

Pushbutton Accessories

DELTA profil frames

Technical specifications

- For horizontal and vertical mounting
- Degree of protection IP20

	DELTA profil			
	Single	Double	Triple	
Dimensions				
• Length	mm 80	151	222	
• Width	mm 80	80	80	

Selection and ordering data

	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
 5TG1 801  5TG1 803 (frame part cutout)  5TG1 804 (frame part cutout)	Frames							
	Frames, 80 mm, cutout							
	• Titanium white (similar to RAL 9010)							
	- Single	►	5TG1 801		1	1/10	021	0.014
	- Double	A	5TG1 802		1	1/10	021	0.024
	- Double, with one cut-out	A	5TG1 803		1	1/10	021	0.024
	- Triple, with one cut-out	A	5TG1 804		1	1/10	021	0.033
	• Pearl gray (similar to RAL 7035)							
	- Single	A	5TG1 861		1	1/10	021	0.014
	- Double	A	5TG1 862		1	1/10	021	0.024
	- Double, with one cut-out	A	5TG1 863		1	1/10	021	0.024
	- Triple, with one cut-out	A	5TG1 864		1	1/10	021	0.033
	• Silver (similar to RAL 9006)							
	- Single	A	5TG1 761		1	1/10	021	0.014
	- Double, with one cut-out	A	5TG1 763		1	1/10	021	0.024
	- Triple, with one cut-out	A	5TG1 764		1	1/10	021	0.033
	• Anthracite (similar to RAL 7016)							
	- Single	A	5TG1 831		1	1/10	021	0.014
- Double	A	5TG1 832		1	1/10	021	0.024	
- Double, with one cut-out	A	5TG1 833		1	1/10	021	0.024	
- Triple, with one cut-out	A	5TG1 834		1	1/10	021	0.033	
• Champagne (similar to RAL 7048), single	A	5TG1 701-1		1	1/10	021	0.017	
• Bronze (similar to RAL 3012), single	A	5TG1 741-1		1	1/10	021	0.017	

Technical specifications

Frames

- For horizontal and vertical mounting
- Degree of protection IP20

Intermediate frames

For installation of devices with cover plate
65 mm x 65 mm and GAMMA *instabus* sensors.

	DELTA style				
	Single	Double	Triple	Quadruple	Quintuple
Dimensions					
• Length	mm 82	153	224	295	366
• Width	mm 82	82	82	82	82

Selection and ordering data

	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
 5TG1 321	Frames							
	82 mm							
	• Titanium white (similar to RAL 9010)							
	- Single	►	5TG1 321		1	1/10	021	0.022
	- Double	►	5TG1 322		1	1/10	021	0.034
	- Triple	A	5TG1 323		1	1/10	021	0.049
	- Quadruple	A	5TG1 324		1	1/10	021	0.062
	- Quintuple	A	5TG1 325		1	1/5	021	0.088
	• Basalt black (similar to RAL 7016)							
	- Single	A	5TG1 361		1	1/10	021	0.021
	- Double	A	5TG1 362		1	1/10	021	0.039
	- Triple	A	5TG1 363		1	1/10	021	0.047
	- Quadruple	A	5TG1 364		1	1/10	021	0.060
	- Quintuple	A	5TG1 365		1	1/5	021	0.086
	• Platinum metallic	NEW						
	- Single	►	5TG1 321-1		1	1/10	021	0.022
	- Double	►	5TG1 322-1		1	1/10	021	0.032
	- Triple	►	5TG1 323-1		1	1/10	021	0.045
	- Quadruple	►	5TG1 324-1		1	1/10	021	0.058
	- Quintuple	►	5TG1 325-1		1	1/5	021	0.074
 5TG1 328	Intermediate frames							
	68 mm							
	• Titanium white (similar to RAL 9010)	A	5TG1 328		1	1/10	021	0.008
	• Basalt black (similar to RAL 7016)	A	5TG1 368		1	1/10	021	0.008
	• Platinum metallic	NEW ►	5TG1 328-1		1	1/10	021	0.012

Display, Operation

Pushbutton Accessories

DELTA ambiente frames

Technical specifications

- For horizontal and vertical mounting
- Degree of protection IP20

		DELTA ambiente				
		Single	Double	Triple	Quadruple	Quintuple
Dimensions	• Length	mm 83	154	225	296	367
	• Width	mm 83	83	83	83	83

Selection and ordering data

Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
				Unit(s)	Unit(s)		kg
 Frames (to be discontinued) 83 mm, contour • Arctic white (RAL 9002) - Single - Double - Triple - Quadruple - Quintuple							
	▶	5TG1 511		1	1/5	021	0.081
	▶	5TG1 512		1	1/5	021	0.135
	▶	5TG1 513		1	1/5	021	0.187
	A	5TG1 514		1	1/5	021	0.218
	A	5TG1 515		1	1/5	021	0.263

5TG1 511

Surface-mounting enclosures

Technical specifications

		DELTA line			DELTA profil			DELTA style		
		Single	Double	Triple	Single	Double	M 110	Single	Double	Triple
Dimensions	• Length	mm 84	155	155	80	125	80	84	155	155
	• Width	mm 84	84	84	80	80	80	84	84	84
	• Depth	mm 42.5	42.5	42.5	42.5	42.5	30	42.5	42.5	42.5
Flame-retardant floor plate		✓	✓	✓	✓	✓	--	✓	✓	✓
For horizontal and vertical mounting		✓	✓	✓	✓	✓	✓	✓	✓	✓

Selection and ordering data

Version		DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg	
					Unit(s)	Unit(s)			
DELTA line									
	Surface-mounting enclosures								
	For flush-mounting devices, 84-mm								
	• Titanium white								
		▶	5TG2 901	1	1/5	021	0.085		
		▶	5TG2 902	1	1/3	021	0.125		
		A	5TG2 903	1	1/2	021	0.190		
	• Electrical white								
		A	5TG2 861	1	1/5	021	0.085		
		A	5TG2 862	1	1/3	021	0.125		
		A	5TG2 863	1	1/2	021	0.190		
5TG2 901									
DELTA profil									
	Surface-mounting enclosures								
	For flush-mounting devices, 80-mm								
	• Titanium white								
		▶	5TG1 825	1	1/5	021	0.048		
		▶	5TG1 826	1	1/5	021	0.078		
5TG1 825									
	M 110 surface-mounting enclosures								
	Single								
			• Pearl gray	D	5WG3 110-8AB01	1	1	022	0.048
			• Titanium white	A	5WG3 110-8AB11	1	1	022	0.048
			• Anthracite	D	5WG3 110-8AB21	1	1	022	0.048
			• Silver	D	5WG3 110-8AB71	1	1	022	0.048
5WG3 110-8AB11									
DELTA style									
	Surface-mounting enclosures								
	For flush-mounting devices, 84-mm								
	• Titanium white								
		▶	5TG2 901	1	1/5	021	0.085		
		▶	5TG2 902	1	1/3	021	0.125		
		A	5TG2 903	1	1/2	021	0.190		
5TG2 901									

Display, Operation

Pushbutton Accessories

Pictographs

Technical specifications

- For a clear overview of all functions
- For insertion in the two outer pushbutton rockers of the UP 230, UP 230E, UP 231, UP 231E multifunction pushbuttons
- Dimensions: $\varnothing$ 8 mm

Selection and ordering data

Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
Pictographs for multifunction pushbuttons							
 Dimming	B	5WG1 293-8AB00		100	10	022	0.600
 Switching	B	5WG1 293-8AB01		100	10	022	0.600
 Shutter/blind	B	5WG1 293-8AB02		100	10	022	0.600
 Presence/convenience	B	5WG1 293-8AB03		100	10	022	0.600
 Absence/standby	B	5WG1 293-8AB04		100	10	022	0.600
 Nighttime reduction	B	5WG1 293-8AB05		100	10	022	0.600
 Frost protection	B	5WG1 293-8AB06		100	10	022	0.600
 Heat protection	B	5WG1 293-8AB07		100	10	022	0.600
 Dew point	B	5WG1 293-8AB08		100	10	022	0.600
 Storm warning	B	5WG1 293-8AB10		100	10	022	0.600

Overview



The DELTA millennium trunking system has an impressive homogeneous, smooth and clearly structured operator interface made of anodized aluminum.

It hides a wealth of innovative technology, exclusively for use with *instabus*:

- Independent of country-specific switch and socket boxes
- Linking element between ceilings and floors
- Installation of N devices

The trunking comprises a trunking base and a trunking lid. The trunking lid is easily and quickly snap-fitted in the trunking base in the same way as the modules.

The individual modules can be arranged side by side in any order and be used in any number.

Design

The modular design provides great flexibility during the planning phase:

- Trunking
 - Surface-mounting version
 - Flush-mounting version (available soon)
- Modules
 - *instabus* modules (pushbuttons, room temperature controllers)
 - Socket outlet modules
 - Masking modules (with Siemens logo)
- Accessories
 - Sets of end plates
 - Wall junction covers
 - Cable holders
 - Grounding sets
 - Disassembly tools

Design

DELTA millennium is also unique in terms of design and operator friendliness:

- Customized labeling with text in the user's national language and symbols
- Uniform, homogeneous and self-explanatory conventional keys
- Homogeneously illuminated, high-intensity status and orientation lighting

Disassembly

One masking module per trunking section is required to open a closed trunking line.

Other modules or trunking lids cannot be disassembled until the masking module has been removed with the disassembly tool.



Ordering data

The following data are required for all orders:

- Trunking
 - The length of the trunking base depends on the room height
 - The number and lengths of the trunking lids depend on the number of modules
- Modules
 - Labeling text
 - Symbols

Please complete an order form for each module (see page 1/34) and enclose it with your order.

Please send DP orders by fax.

Orders for trunking bases and trunking lids should be made out for the length required in meters, not for a certain number of units:

Example:

If you want to order a trunking base with a length of 173 cm.

- Incorrect: 1 x 5WG1 195-3AB01, 173 cm long
- Correct: 1.73 m 5WG1 195-3AB01

Display, Operation

Pushbutton Accessories

Accessories for trunking systems

IV

☐ IKE 281 Pushbutton, single

☐

IKE 282 Pushbutton, double

☐

IKE 283 Pushbutton, quadruple

☐

IKE 250 Temperature controller

Symbols:

S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
								1	2	3	4
S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24

To Siemens AG
Industry Sector
BT ET Log
Regensburg
Germany
Fax: +49(0)941 790-2751

Date

 Customer's reference
order reference I

I Order item

II

Quantity

III

Order no.

5WG1 . . . -

Project

Installation site

Local partner

Notes

How to fill in the order form:

I State order item

II State quantity

III Fill in desired order no.

IV Mark desired module according to order no.

V State inscription text
(font: Univers S47 Condensed Light 24 point)

VI Select and state symbols

Special inscriptions on demand.

Example for
ordering:

Illumination



Accessories for trunking systems

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
DELTA millennium								
	AP 195	AP 195 trunking bases¹⁾ • For surface mounting • Aluminum • Comprises 1 ground conductor, 3 ground terminals, 1 partition, 4 partition holders, 5 coupling pins • Dimensions (W x D): 170 x 68 mm, maximum length 2 m	D	5WG1 195-3AB01	1 m	1 m	030	2.200
5WG1 195-3AB01								
	IKE 197	IKE 197 trunking lids • Aluminum • Comprises ground conductor and ground terminal for the trunking base	D	5WG1 197-8AB01	1 m	1 m	030	1.300
5WG1 197-8AB01								
	IKE 198	IKE 198 socket outlet covers • Aluminum • Modules for installation in trunking systems, with large hinged lid and engraved plug symbol • Trunking mounting boxes for AP 195 trunking base, for installation of SCHUKO socket outlets in DELTA design • Comprises ground conductor and ground terminal for the trunking base	D	5WG1 198-8AB01	1	1	030	0.015
5WG1 198-8AB01								
	IKE 195	IKE 195 masking modules • Aluminum • For simple opening of all installed trunking lines • Comprises ground conductor and ground terminal for the trunking base	D	5WG1 195-8AB41	1	1	030	0.199
5WG1 195-8AB41								
		Disassembly tools With suckers and hooks for simple disassembly of modules, masking modules and trunking lids	D	5WG1 195-8AB51	1	1	030	0.159
5WG1 195-8AB51								
		Sets of end plates • Aluminum • For front connection of the trunking • Comprises 2 end plates, 2 ground conductors and 2 ground terminals for the trunking base	D	5WG1 195-8AB21	1	1	030	0.663
5WG1 195-8AB21								
		Wall junction covers As covers for wall and ceiling openings, for the clean connection of trunking to the wall or the ceiling	D	5WG1 195-8AB31	1	1	030	0.198
5WG1 195-8AB31								
		Cable holders For fixing non-metallic-sheathed cables in the trunking base, comprises 1 mounting rail with 2 slide nuts, 5 cable clips, 2 screws with toothed disks	D	5WG1 195-8AB01	1	1	030	0.112
5WG1 195-8AB01								
		Grounding sets Comprises 3 ground conductors, 3 ground terminals for the trunking base, 3 ground connections for the trunking lid	D	5WG1 195-8AB11	1	1	030	0.127
5WG1 195-8AB11								

¹⁾ Please specify length when ordering, maximum length: 2 m (see page 1/33 "Ordering data").

Display, Operation

Touch panels

Technical specifications

Type	Description
 UP 588/12 UP 588/22	UP 588/12, UP 588/22 touch panels - Multifunctional display/operating device for the KNX, with 320 x 240 pixels, 5.7" TFT color display and touch screen - Software-controlled dimming and switching off of LED background lighting - For the display and operation of at least 210 communication objects on at least 10 display pages - An additional page for the display and acknowledgement of at least 16 alarms - Time program as weekly program for at least 110 communication objects and at least 10 switching tasks per weekday - Presence simulation for all communication objects entered in the weekly program 1-bit or 8-bit scene control for at least 64 scenes - At least 64 AND/OR operations, each from up to at least 4 communication objects - At least 16 reference conditions for tripping one switching task respectively - Individual password protection for each display page - Buffered realtime clock and display of time and date - Display of a loadable image as a start screen page or with display of a slide show containing at least 50 loadable images instead of a start screen page - USB interface for loading images and symbols - Pushbutton for device reset - Integrated bus coupling units - Bus connection via bus terminal - Connection of external power supply over screw terminals for 2.5 mm² - Flush-mounting device in flush-mounting/hollow-wall box with the dimensions (W x H x D): 161.5 x 135 x 64 mm
 UP 588/11 UP 588/21	UP 588/11, UP 588/21 touch panels - Graphical LCD (monochrome) with 5.5 inches (approx. 14 cm) screen diagonal with 320 x 240 pixel resolution - Integrated resistive matrix touch with 6 x 10 fields - Activation of backlighting by touching the screen and automatic deactivation after a configurable time - Triggering of a switch command telegram by touching the de-activated screen (e.g. for switching on room lighting) - Display and control of up to 70 KNX standard functions on 7 display pages, each with 10 function fields and display of separate alarm page with 4 alarm and 2 text messages - Selectable function per function field: text display (up to 10 characters), status indication (as symbol or text) or control field (with up to 2 pushbuttons) - Time program (weekly program) for 5 channels (communication objects) each with up to 10 scheduled entries - Scene control for storing and calling up of 8 scenes with 10 communication objects - Can be configured using ETS (Engineering Tool Software) - Display of date and time - Integrated bus coupling unit - Bus connection via bus terminal - Hollow-wall box for flush mounting included in delivery - Dimensions (H x W x D): 190 x 156 x 58 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	UP 588/12	UP 588/12, touch panels¹⁾²⁾	 B	5WG1 588-2AB12		1		0.725
		• Rated operational voltage 230 V AC, 50 Hz						
	UP 588/22	UP 588/22, touch panels¹⁾²⁾	 B	5WG1 588-2AB22		1		0.725
		• Rated operational voltage 24 V AC/DC						
	Accessories							
	Design frames							
	For UP 588/12, UP 588/22 touch panels							
		• Aluminum		5WG1 588-8AB02	On req.			
		• Stainless steel		5WG1 588-8AB03	On req.			
		• Black glass		5WG1 588-8AB04	On req.			
		• White glass		5WG1 588-8AB05	On req.			
	Flush-mounting/hollow-wall box							
		For UP 588 touch panels	 C	5WG1 588-8EB01	1	1	030	0.130
	UP 588/11	UP 588/11 touch panels¹⁾ (to be discontinued)	▶	5WG1 588-2AB11	1	1	030	0.750
		• White display backlighting						
	UP 588/21	UP 588/21 touch panels¹⁾ (to be discontinued)	B	5WG1 588-2AB21	1	1	030	0.710
		• White display backlighting						
		• Rated operational voltage 24 V AC/DC						
	Accessories							
	Design frames (to be discontinued)							
		For UP 588/11, UP 588/21 touch panels	▶	5WG1 588-8AB01	1	1	030	0.128
		Made of anodized aluminum, with Siemens logo.						

5WG1 588-2AB12
5WG1 588-2AB22
with aluminum frame

5WG1 588-2AB11
5WG1 588-2AB21

¹⁾ The required design frame must be ordered separately.

²⁾ The flush-mounting/hollow-wall box must be ordered separately.

Remote controls

Technical specifications

Type	Description
 S 425	S 425 wave hand-held radio transmitters 4 preselection pushbuttons and 4 pushbutton pairs for wireless operation of 16 different room functions - Separate pushbutton pair for a central function (e.g. central ON/OFF) - Configurable function per pushbutton pair: switch, switch and dim, shutter/blind control, store and call up scenes - Radio transmitter: 868 MHz - Black or silver - Dimensions (H x W x D): 154 x 55 x 24 mm
 S 425	S 425 IR hand-held transmitters - Remote control of 8 of 64 possible channels, can be operated as switchable groups of 4 channels each - Assignable functions per channel: Switching OVER, switching ON/OFF, switching ON/OFF and dimming, shutter/blind, value transmission, store and call up scenes - Rotary switches for setting the channel number range - Transmitter range approx. 20 m - Black - Dimensions (H x W x D): 159 x 39 x 23 mm
 AP 420 AP 421 AP 422	IR wall-mounted transmitters - For wireless control of actuators over bus telegrams. The actuator groups can be operated over the pushbutton rockers. Transmitter range with red LED cover: approx. 8 m transmitter range with white LED cover: 6 m - The battery must be ordered separately - Dimensions (H x W x D): 75 x 115 x 25 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
	S 425 S 425 wave hand-held radio transmitters³⁾ 17 channels • Black • Silver		► 5WG3 425-7AB21 ► 5WG3 425-7AB71		1 1	1 1	030 030	0.124 0.125
5WG3 425-7AB21								
	S 425 S 425 IR hand-held transmitters²⁾ 8 channels		► 5WG1 425-7AB21		1	1	030	0.070
5WG1 425-7AB21								
	AP 420 AP 420 IR wall-mounted transmitters¹⁾ (to be discontinued) Single, adjustable channels: 1 of 64 • Red LED covers, titanium white • White LED covers, titanium white	A C	5WG1 420-3AB11 5WG1 420-3AB12		1 1	2 2	030 030	0.079 0.079
	AP 421 AP 421 IR wall-mounted transmitters¹⁾ (to be discontinued) Double, adjustable channels: 2 of 64 • Red LED covers, titanium white (to be discontinued) • White LED covers, titanium white (to be discontinued)	A C	5WG1 421-3AB11 5WG1 421-3AB12		1 1	2 2	030 030	0.079 0.079
	AP 422 AP 422 IR wall-mounted transmitters¹⁾ (to be discontinued) Quadruple, adjustable channels: 4 of 64 • Red LED covers, titanium white (to be discontinued) • White LED covers, titanium white (to be discontinued)	A C	5WG1 422-3AB11 5WG1 422-3AB12		1 1	2 2	030 030	0.079 0.079
	Accessories							
	490 batteries, 6 V (to be discontinued) For the power supply of the AP 420, AP 421, AP 422 IR wall-mounted transmitter	D	5WG1 490-8AA81		1	1	030	0.030

¹⁾ The batteries required for operation are included in delivery.

²⁾ The 4 batteries of type LR03/AAA (1.5 V) required for operation are not included in delivery.

³⁾ The battery 490, 6 V required for operation must be ordered separately.

Visualization, software

Overview

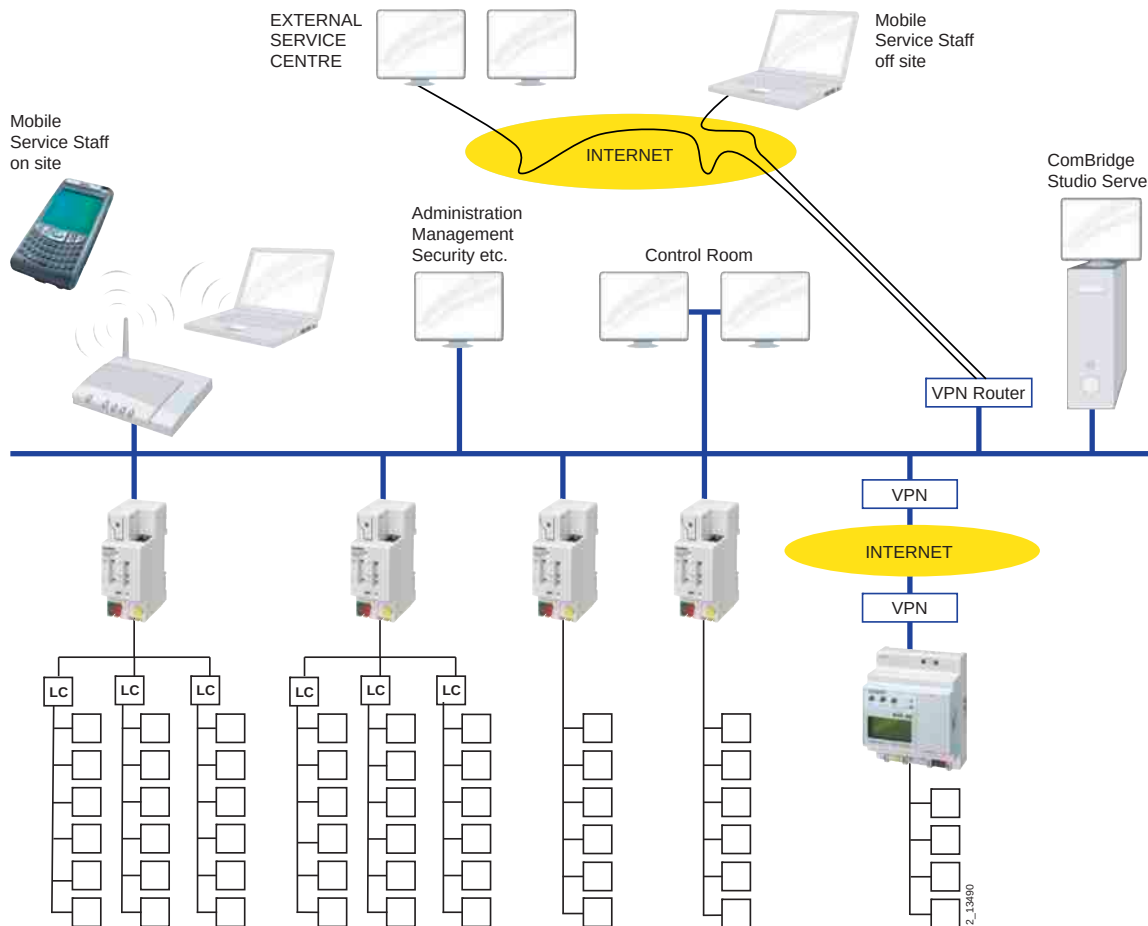
Web-Visualization with ComBridge Studio

Due to their distributed structure, KNX systems support a high degree of automation in building management systems, as well as the detailed and effective management of building-relevant information. The IPAS ComBridge Studio Suite allows you to make optimum use of the options provided by the KNX system. The software enables KNX to operate, control and visualize systems over the Internet. It also allows users an overview of key information and enables an immediate response if required.

You can use the ComBridge Studio software to manage the KNX system and its components from any computer, whether PC, notebook, tablet PC or PDA/smart phone, as long as the user has the appropriate access rights.

The use of wireless network connections supports the management of the KNX system without being tied to a fixed workstation (e.g. central control room). Mobile access to the management system of a building is an invaluable advantage during the local commissioning, maintaining and troubleshooting of plants.

Used together with ComBridge Studio Software, KNXnet/IP devices, such as a N 146 IP router, offer a modular, high-capacity and effective building management system that is unrivaled in flexibility.



Overview of the ComBridge Studio system concept

Using standard communication networks based on Internet protocols, the building management system of distant premises can be managed over a central service control room. Satellite connections are also supported: the software has been designed so that even prolonged transmission times for the relevant information do not influence the functionality or stability of the system.

The use of standard browser technologies has considerably simplified access to the management system. All applications run exclusively on the server, which is where they are also installed and modified. A client-side installation is therefore not necessary; access to building information, such as room control, building monitoring, etc. is over a standard HTML browser - an extremely cost-effective solution.

Companies that have a multitude of premises, such as store groups, banks, gas stations, etc., are usually able to use their existing IT networks to link the building management systems of their premises with the IPAS building management system. This results in lower installation costs and improves management of the building infrastructures.

The ComBridge Studio software has already been implemented in a multitude of applications, including in:

- Store chains
- Industrial plants
- Apartments
- Vacations sites with individual bungalows
- Distributed premises
- Hotels
- Office buildings
- Sport arenas
- Exclusive villas

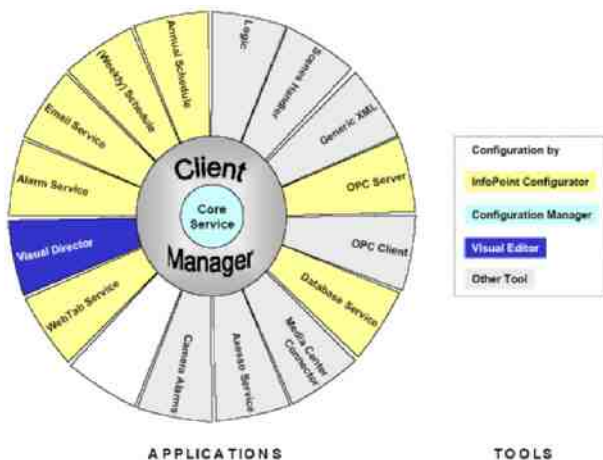
Visualization, software

ComBridge Studio software structureCore and application services

The ComBridge Studio Suite comprises core services that are automatically started with the operating system (Windows) of the server or PC so that no manual intervention is required on the part of the user, i.e. no need to log in.

The ComBridge Studio Suite services include:

- **Core Service**
Communicates with all defined KNXnet/IP devices and automatically monitors all configured KNXnet/IP devices. This service is designed to check all configured devices and ensure that the connection is active. If the connection is lost, the device server automatically attempts to reconnect. If the physical connection permits, the device server maintains all connections to the KNXnet/IP devices.
- **KNXnetIP Service**
Ensures communication with the devices using the KNXnet/IP protocol.
- **Client Manager**
Acts as communication hub between the Core Service and the Application Services.
- **Automation Service**
Executes the application services, e.g. for alarms, e-mail or scheduling programs.
- **MCG Service**
Provides the configuration service for a N 350E IP Controller.



ComBridge Studio software structure

The Core Service communicates with the KNXnet/IP devices. Use Configuration Manager to add or remove devices or to monitor communication with them.

The Client Manager acts as communication distributor between the Core Service and the application services, as well as between the Application Services (e.g. from the OPC server or Generic XML to the Visual Director). The Client Manager interacts with the control room in order to provide current system information and application service configurations.

ComBridge Studio Suite application services:

- **WebTab Service:**
Webtabs operating images in tabular form, each with one line per data point. Each line contains a description text, the group address or object name, the current state of the data point and buttons for operation. Using the InfoPoint Configurator, you can create your own WebTabs in just a few minutes.
- **Visual Director:**
IPAS ComBridge Studio Visual Director is supplementary to Webtab and offers a wide range of free design options. User-definable navigation, free layout of the graphical display and control elements.
- **Web standards:**
Visual Director is HTML-based so that company Web assets, such as logo, navigation, graphics, dynamic HTML, layouts, scripts and dynamic contents in visualization projects, can be used again. Furthermore, HTML know-how is very prevalent on the market and easily available.
- **User login:**
Visual Director provides complete user management. User can be assigned their own start page and navigation. User levels let you control user access to data points.
- **Configuration:**
The supplied Visual Director is a menu-assisted, pixel-graphic HTML editor with a multitude of functions for creating your own Web operator interface.
- **E-Mail Service:**
Critical states or events can be monitored so that in the event of their occurrence, e-mails are sent automatically. The overshooting or undershooting of limit values, 0 or 1 states, or the receipt of specific group addresses can be tested. The contents of e-mails can be designed to have great impact, and even sent with an attachment, e.g. with photos or circuit diagrams.
- **Database Service:**
You can use the DS to write selected KNX group addresses (indications, measured values, count values, switch and positioning commands) to a database for subsequent evaluation and reporting.
- **(Weekly) Scheduling Service:**
Weekly scheduling programs can be stored and managed centrally using the Scheduling Service. Simply checkmark week days to activate. Switch and positioning commands can be executed.
- **Annual Scheduling Service:**
With the Annual Scheduling Service, scheduling programs can be centrally created and managed for selected days or periods. Switch and positioning commands can be executed.
- **Alarm Service:**
Critical states or events can be monitored so that in the event of their occurrence, an alarm indication is automatically displayed in an alarm window. The overshooting or undershooting of limit values, 0 or 1 states, or the receipt of specific group addresses can be tested. Even after they have been acknowledged, alarms are stored in a database for subsequent evaluation.
- **OPC Service:**
ComBridge Studio offers full OPC server functionality, as well as OPC client functionality, to enable the flexible integration of KNX systems into other control system.
Double advantage: ComBridge Studio OPC Services can be used at the same time as other ComBridge Studio applications. For example, the plant can be controlled by OPC at the same time as the workplace is controlled using Webtab or a Visual Director application is implemented. It is also possible to ensure mobile access to KNX installations for service personnel, or set up an e-mail message service, etc.
- **Scenes:**
Supports the creation of centrally executed scenes.

Display, Operation

Visualization, software

The ComBridge Studio InfoPoint Configurator is a configuration tool with an intuitive interface for application services:

- WebTab Service
- E-Mail Service
- Database Service
- (Weekly) Scheduling Service
- Annual Scheduling Service
- Alarm Service
- OPC server

Licensing

The IPAS ComBridge Studio software license is based on the selected application functions, the number of connected KNXnet/IP devices and the number of simultaneous users.

The IPAS ComBridge Studio software is available in 4 application function packages: micro, mini, midi and maxi. The OPC server and OPC client packages are also available.

All function packages include connection to one KNXnet/IP devices and are for one user.

The application packages micro, mini, midi and maxi can be combined with all of the following expansion packages:

- 5 user expansion package
- 5 gateway expansion package
- OPC server expansion package
- OPC client expansion package
- Weekly switching schedule
- Database and alarm history
- Annual switching schedule
- Scenes
- Logic
- E-mail

Technical specifications

Package functions	Application packages					
	micro-V2	mini-V2	midi-V2	maxi-V2	OPC-S	OPC-C
Core	✓	✓	✓	✓	✓	✓
Visual Director	✓	✓	✓	✓	--	--
Database + Alarm history	□	✓	✓	✓	--	--
Scenes	□	✓	✓	✓	--	--
Weekly schedule	□	□	✓	✓	--	--
Logic	□	□	✓	✓	--	--
Annual schedule	□	□	□	✓	--	--
E-mail	□	□	□	✓	--	--
OPC server	□	□	□	□	✓	--
OPC client	□	□	□	□	--	✓
1 x gateway	✓	✓	✓	✓	✓	✓
1 x user	✓	✓	✓	✓	✓	✓
1 x gateway	□	□	□	□	□	□
1 x user	□	□	□	□	□	□

□ Optional/expansion packages

Visualization software IPAS ComBridge Studio, application packages

micro-V2

- Core functions for the signaling, logging and display of alarms and operating states or operating values, as well as current images on PC (operator terminals)
- Acquisition of all KNX group addresses from ETS2 and ETS3
- Assignment option of data point type, unit and a name of up to 32 characters in length for each operator entry to be displayed
- Editor for the fast creation of tabular images that can be operated over browser
- Dynamic image elements for the display of updated data point states
- Configuration of time scheduling programs, event programs, ODBC database interface, e-mail server interface, OPC server interface
- Visual Director of graphical display and operation
- Read-in of background images as pixel and vector graphics, including the graphic editor IPAS ComBridge Studio, Visual Editor for creation of images that can be operated over browser
- Operation enable in at least 4 authorization steps, with time-dependent operation enable, with user-dependent operation enable per operator entry
- Operator-dependent start image and operating image structure
- The following dynamic image elements are available for the display of updated plant images:
 - Output variables
 - Follow-up image variables
 - Switching variables
 - Status variables
 - Text variables
 - Counter variables
- Insertion of video camera images
- Output of colored screenshots to printers
- Configuration and and playback version, for one KNXnet/IP router or controller
- Storage of event information on the hard disk and display on a screen page
- Failure monitoring of the KNXnet/IP gateways
- Configuration and and playback version
- For one user/operator terminal simultaneously
- Driver software for the KNX connection over Ethernet interface with KNXnet/IP, including manual.

mini-V2

- Function and scope of delivery of visualization software IPAS ComBridge Studio micro V2
- Database server interface for the storage of bus events in any database with ODBC interface, as the basis for, e.g. consumption statistics for count values or output statistics for a peak load limiter, with configuration of the database server interface from the visualization software
- Storage of event information on the hard disk and display on a screen page
- Database-supported logging of an unlimited number of alarms, with display and tracking of alarms in a separate alarm window, with configuration from the visualization software
- Scene control with an unlimited number of channels and entries with configuration of the scenes of the visualization software

Visualization, software

midi-V2

- Function and scope of delivery of the IPAS ComBridge Studio micro V2 visualization software
- Scheduling program as weekly program with an unlimited number of channels and entries with configuration of the scheduling program of the visualization software
- Logic control with an unlimited number of channels and entries with configuration of the logic of the visualization software.

maxi-V2

- Function and scope of delivery of the IPAS ComBridge Studio midi V2 visualization software
- Scheduling program as weekly program and annual program, with an unlimited number of channels and entries with configuration of the scheduling program of the visualization software
- E-mail server interface for the event-controlled transmission of electronic messages, with configuration of indications from the visualization software, with an unlimited number of channels and entries, with event-dependent message transmission, with event-dependent receiver lists, with event-dependent attachment of images and/or files.

OPC-S

- Same as micro-V2, without Visual Director,
- Configuration of OPC server interface,
- OPC server interface for data exchange with an OPC client,
- Configuration of OPC data points from the visualization software as configuration and playback version

OPC-C

- Same as micro-V2, without Visual Director,
- Configuration of OPC client interface,
- OPC client interface for data exchange with an OPC client,
- Configurator for configuration of OPC data points, as configuration and playback version

IPAS ComBridge Studio expansion packages5 users

- Expansion of IPAS ComBridge Studio visualization software (micro, mini, midi, maxi, OPC-S and OPC-C) by 5 further user stations.

5 gateways

- Expansion of IPAS ComBridge Studio visualization software (micro, mini, midi, maxi, OPC-S and OPC-C) by the communication with 5 further KNXnet/IP routers or IP controllers.

OPC server

- Expansion of IPAS ComBridge Studio visualization software (micro, mini, midi or maxi) by an OPC server interface for data exchange with an OPC client
- Configuration of OPC data points from the visualization software

OPC client

- Expansion of IPAS ComBridge Studio visualization software (micro, mini, midi or maxi) by an OPC client interface for data exchange with an OPC server
- Configurator for configuration of OPC data points

Weekly switching schedule

- Expansion of IPAS ComBridge Studio visualization software by a scheduling program as a weekly program
- Unlimited number of channels and entries
- Configuration of the scheduling program from the visualization software.

Database and alarm history

- Expansion of IPAS ComBridge Studio visualization software by a database server interface for the storage of bus events in any database with ODBC interface, as the basis for, e.g. consumption statistics for count values or output statistics for a peak load limiter, with configuration of the database server interface from the visualization software
- Storage of event information on the hard disk and display on a screen page
- Database-supported logging of an unlimited number of alarms, with display and tracking of alarms in a separate alarm window, with configuration of the alarms from the visualization software.

Annual switching schedule

- Expansion of IPAS ComBridge Studio visualization software by a scheduling program as an annual program
- Unlimited number of channels and entries
- Configuration of the scheduling program from the visualization software

Scenes

- Expansion of IPAS ComBridge Studio visualization software by a scene control
- Unlimited number of channels and entries
- Configuration of scenes from the visualization software

Logic

- Expansion of IPAS ComBridge Studio visualization software by a logic control
- Unlimited number of channels and entries
- Configuration of logic from the visualization software

E-mail

- Expansion of IPAS ComBridge Studio visualization software by an e-mail server interface for the event-controlled transmission of electronic information
- Configuration of messages from the visualization software
- Unlimited number of channels and entries
- Event-dependent message texts
- Event-dependent receiver lists
- Event-dependent attachment of images and/or files

Display, Operation

Visualization, software

Selection and ordering data

	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	With optional expansion packages for							
	• Number of users • Number of KNXnet/IP gateways • Scheduling programs • Database interface • OPC interface • E-mail service							
	Visualization software IPAS ComBridge Studio, application packages							
	• micro-V2		ZNX:63101-32-70			On req.		
	• mini-V2		ZNX:63101-32-71			On req.		
	• midi-V2		ZNX:63101-32-72			On req.		
	• maxi-V2		ZNX:63101-32-73			On req.		
	• OPC S		ZNX:63101-32-74			On req.		
	• OPC C		ZNX:63101-32-75			On req.		
	IPAS ComBridge Studio, expansion packages							
	• 5 users		ZNX:63101-32-76			On req.		
	• 5 gateways		ZNX:63101-32-77			On req.		
	• OPC server		ZNX:63101-32-78			On req.		
	• OPC client		ZNX:63101-32-79			On req.		
	• Weekly switching schedule		ZNX:63101-32-80			On req.		
	• Database + alarm history		ZNX:63101-32-81			On req.		
	• Annual switching schedule		ZNX:63101-32-82			On req.		
	• Scenes		ZNX:63101-32-83			On req.		
	• Logic		ZNX:63101-32-84			On req.		
	• E-mail		ZNX:63101-32-85			On req.		

Technical specifications

Type	Description
 N 151	N 151 IP viewers - Interface converter between a KNX and an IP network, with the following simultaneously executable functions: - As WebServer for monitoring and control of up to 40 states and values transmitted over the KNX network, which can be displayed on up to 5 image pages of a PC connected to the IP network using Internet Explorer 6.0, 7.0 or Firefox 2.0 - For the parameterization of a KNX system using ETS3 - For communication between the KNX network and a ComBridge Studio visualization software - Special WEB page for the multilanguage adaptation of the presentation of an image page and a special WEB page for firmware upgrades - Ethernet interface for connection to the IP network using the Internet Protocol - RJ45 socket for connection to Ethernet 10 Mbits/s 2 LED displays for indication of ready-to-run state and for IP communication - Integrated bus coupling units - KNX bus connection via bus terminal - Electronics powered over an external power supply unit for 24 V AC/DC - Connection of external power supply over an extra-low-voltage terminal - Modular installation devices for mounting on TH35 EN 60715 mounting rail - Width: 4 MW (1 MW = 18 mm)

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
 5WG1 151-1AB01	N 151	N 151 IP viewers	 A	5WG1 151-1AB01	1	1	030	0.150

Display, Operation

Notes

Output Devices

2

2



2/2	Introduction
2/3	Binary output devices
2/7	Analog output devices

Output Devices

2

Introduction

Overview

Devices		Application	Page
	Binary output devices	Binary outputs and load switches in several versions.	2/3
	Analog output devices	Flexible application: the universal I/O module provides flexible inputs and outputs.	2/7

Technical specifications

Type	N 512/11	N 512/21 ³⁾	N 567	N 567/12	N 567/11	N 567/21	N 510/03	N 510/04	N 512	N 511/02	N 562	GE 561/02	UP 562	UP 562/11	UP 562/31	UP 511/10
Enclosure data																
Design	N	N	N	N	N	N	N	N	N	N	N	GE	UP	UP	UP	UP
Modular installation devices for mounting on TH 35 EN 60715 mounting rail	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--	--
For installation in flush-mounting switch and socket boxes with Ø 60 mm	--	--	--	--	--	--	--	--	--	--	--	--	✓	✓	✓	✓
Modular installation device in oblong design, for installation in luminaires for fluorescent lamps	--	--	--	--	--	--	--	--	--	--	--	✓	--	--	--	--
Integrated user interface for plugging in a single to quadruple bus pushbutton	--	--	--	--	--	--	--	--	--	--	--	--	✓	--	--	--
Interface for connection of a switch actuator expansion	✓	✓	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimensions																
• Height	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
• Width/Ø (1 MW = 18 mm)	3 MW	3 MW	4 MW	4 MW	4 MW	8 MW	4 MW	4 MW	4 MW	8 MW	2 MW	28	71	51	Ø 53	Ø 53
• Depth	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	274.5	71	Ø 44	Ø 53	Ø 53
42												40	40	40	28	28
Mounting type																
Claw fixing	--	--	--	--	--	--	--	--	--	--	--	--	✓	--	--	--
Screw fixing	--	--	--	--	--	--	--	--	--	--	--	--	✓	--	--	--
Display/control elements																
Direct operation (local operation)	✓	✓ ¹⁾	✓	✓	✓	✓	--	--	--	✓	--	--	--	--	--	--
Mechanical local operation	--	--	--	--	--	--	✓	✓	✓	--	--	--	--	--	--	--
Mechanical switching position display	--	--	--	--	--	--	✓	✓	✓	--	--	--	--	--	--	--
LED for status indication per output	✓	✓ ¹⁾	✓	✓	✓	✓	--	--	--	✓	--	--	--	--	--	--
Power supply																
Electronics powered over bus voltage	✓	✓ ¹⁾	--	--	--	--	✓	✓	✓	--	✓	✓	✓	✓	✓	✓
Electronics powered over an integrated power supply unit for supply voltage 230 V AC	--	--	✓	✓	✓	✓	--	--	--	✓	--	--	--	--	--	--
Bus connection																
Integrated bus coupling units	✓	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bus connection via bus terminal	✓	--	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	✓	✓	✓	✓
Bus connection over contact system to data rail	--	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--	--
Outputs																
Load output																
Floating relay contacts	3	3	4 ²⁾	8 ²⁾	8 ²⁾	16 ²⁾	4	4	8	8	2	3	1	1	1	1
Rated contact voltage, AC	V	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
Rated contact current	A	16	16	8	2	8	10	16	16	16	16	10	10	10	6	16
3-phase switching (3 outputs simultaneously)	✓	✓	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Last check	✓	✓	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Load data (see chapter "Technical Information")																
Inputs																
Max. cable length, unshielded, untwisted	m	--	--	--	--	--	--	--	--	--	--	--	--	--	5	5
Pushbutton inputs																
For signal input (floating contacts)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	2
Determination of switching state over the voltage generated in the device	--	--	--	--	--	--	--	--	--	--	--	--	--	--	✓	✓

1) Executed over main module.

2) Except channel A.

3) Only in connection with 512/11.

For selection and ordering data, see page 2/5.

Output Devices

2

Binary output devices

Type	981B01 N 512/11	980303 N 567	980304 N 567/12	980302 N 567/11	980401 N 567/21	980401 N 510/03	980401 N 510/04	980701 N 512	980301	901D01 N 511/02	520401 N 562	520501	520901	520B01	520802	530501 GE 561/02	530B01	1) UP 562	901002 UP 562/11	207101 UP 562/31	207101 UP 511/10
Application program																					
Output functions																					
Max. number of group addresses	511	100	100	100	106	55	55	52	49	106	11	19	11	17	10	19	17	38	38	26	26
Max. number of assignments	511	100	100	100	106	56	56	52	49	74	11	20	12	17	10	20	17	38	38	27	27
Max. no. of expansion modules that can be butt-mounted	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Locking function	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	✓	✓
Configurable behavior in the event of a bus power failure	✓	--	--	--	--	✓	✓	✓	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Configurable behavior in the event of a bus power recovery	✓	--	--	--	--	✓	✓	✓	✓	✓	--	✓	✓	✓	--	✓	✓	✓	✓	✓	✓
Configurable behavior in the event of a system voltage recovery	--	✓	✓	✓	✓	--	--	--	--	✓	--	--	--	--	--	--	--	--	--	--	--
Behavior in the event of system voltage failure	--	✓	✓	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
• Positive OFF switching of the outputs	✓	--	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• Unchanged switching state of outputs	✓	--	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ventilator control																					
Speed control 1 ... 3-step	✓	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heating control																					
Control of electrothermal position drives	✓	--	--	--	--	--	--	--	--	--	--	--	--	--	✓	--	--	--	--	--	--
Scene control																					
Integrated 8-bit scene control	✓	✓	✓	✓	✓	--	--	--	--	✓	--	--	--	--	--	--	--	--	--	--	--
Scenes to be integrated per channel	8	8	8	8	8	--	--	--	--	8	--	--	--	--	--	--	--	--	--	--	--
Time functions																					
OFF delay	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	--	--	--	--	✓	✓	✓	✓
ON delay	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	--	--	--	--	✓	✓	✓	✓
Timer mode (automatic stairwell switch)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--	--	--	--	✓	✓	✓	✓
Night mode (lighting for cleaning)	✓	✓	✓	✓	✓	--	--	--	--	✓	--	--	--	--	--	--	--	--	--	--	--
Warning of impending OFF	✓	✓	✓	✓	✓	--	--	--	✓	✓	--	--	--	--	--	--	--	--	--	--	--
Logical functions																					
Positively driven operation	✓	--	--	--	--	✓	✓	--	✓	--	✓	✓	--	--	--	--	✓	✓	✓	✓	✓
Logic function (1 object)	--	✓	✓	✓	✓	--	--	✓	✓	--	✓	--	--	✓	--	✓	--	--	--	✓	✓
Logic function (2 objects)	✓	--	--	--	--	✓	✓	--	--	✓	--	--	--	--	--	--	--	✓	✓	✓	✓
Can be inverted per output (NO contact/NC contact)	✓	--	--	--	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Status																					
Send status per channel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--	--	✓	✓	✓	✓	✓	✓
Operating hours counting with limit value monitoring per channel ²⁾	✓	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Switching operations counting with limit value monitoring per channel ²⁾	✓	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Output of load current	✓	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

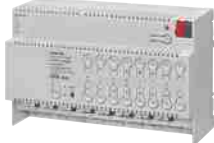
1) See table "Application programs and pushbuttons for use with UP 562".

2) Main and expansion modules.

Application programs and pushbuttons for use with UP 562

For DELTA design	i-system				profil/style			ambiente
Application program	901902	901A02	901C02	901D02	901402	901502	901602	901802
Can be used with pushbuttons	UP 221	UP 222	UP 221E	UP 222E	UP 241 UP 242 UP 285	UP 243 UP 244 UP 286	UP 245 UP 246 UP 287	UP 284
Number of pushbutton pairs	1	2	1	2	1	2	4	4

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
	N 512/11	N 512/11 switch actuators, main modules	B	5WG1 512-1AB11	1	1	030	0.250
		3 x 230/400 V AC, 16 A, C-load, load check						
	N 512/21	N 512/21 switch actuators, expansion	B	5WG1 512-1AB21	1	1	030	0.250
		3 x 230/400 V AC, 16 A, C-load, load check						
	N 567	N 567 switch actuators	▶	5WG1 567-1AB01	1	1	030	0.220
		4 x 230 V AC, 8 A						
	N 567/12	N 567/12 switch actuators	▶	5WG1 567-1AB12	1	1	030	0.265
		8 x 230 V AC, 2 A						
	N 567/11	N 567/11 switch actuators						
	8 x 230 V AC, 8 A							
	N 567/21	N 567/21 switch actuators	▶	5WG1 567-1AB21	1	1	030	0.623
		16 x 230 V AC, 10 A						
	N 510/03	N 510/03 load switches	▶	5WG1 510-1AB03	1	1	030	0.240
		4 x 230 V AC, 16 A						
	N 510/04	N 510/04 load switches						
	4 x 230 V AC, C load, 16 A							

Output Devices

2

Binary output devices

	Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
	N 512	N 512 load switches 8 x 230 V AC, 16 A, C load	▶	5WG1 512-1AB01		1	1	030	0.516
5WG1 512-1AB01									
	N 511/02	N 511/02 switch actuators 8 x 230 V AC, 16 A	 B	5WG1 511-1AB02		1	1	030	0.045
5WG1 511-1AB02									
	N 562	N 562 binary outputs 2 x 230 V AC, 10 A	▶	5WG1 562-1AB01		1	1	030	0.105
5WG1 562-1AB01									
	GE 561/02	GE 561/02 binary outputs 3 x 230 V AC, 10 A	▶	5WG1 561-4AB02		1	1	030	0.140
5WG1 561-4AB02									
	UP 562	UP 562 binary outputs 2 x 230 V AC, 10 A, with PEI	▶	5WG1 562-2AB01		1	1	030	0.080
5WG1 562-2AB01									
	UP 562/11	UP 562/11 binary outputs 2 x 230 V AC, 10 A, without PEI	▶	5WG1 562-2AB11		1	1	030	0.055
5WG1 562-2AB11									
	UP 562/31	UP 562/31 switch actuators 2 x 230 V AC, 6 A, 2 x binary inputs	 ▶	5WG1 562-2AB31	On req.		1		0.100
5WG1 562-2AB31									
	UP 511/10	UP 511/10 switch actuators 1 x 230 V AC, 16 A, 2 x binary inputs	 ▶	5WG1 511-2AB10		1	1	030	0.115
5WG1 511-2AB10									

Technical specifications

Type	Description
 N 670	Universal N 670 I/O modules • 2 universal inputs/outputs, each adjustable as - Analog input 0 V ... 10 V DC - Analog output 0 V ... 10 V DC - Binary input for 10 V DC - Binary output for 10 V DC • Analog input with limit value monitoring and signaling, with adjustable limit values and hysteresis • Analog output with adjustable lower and upper limit of the output voltage with adjustable voltage value in the event of bus voltage failure and recovery • Binary input with pulse edge evaluation • Binary output with adjustable switching position in the event of bus voltage failure and recovery • 2 inputs for the connection of temperature sensors with Pt1000 measured element for temperature measurement in the range -25 °C ... +45 °C, with limit value monitoring and signaling, with adjustable limit values and hysteresis • 2 binary outputs, relay contacts rated for 230 V AC, 10 A at p.f. = 1, with - Configurable actuated position (NO contact/NC contact) - Positively driven operation - Configurable switching position in the event of bus voltage failure and recovery • Electronics powered over an external power supply unit for 24 V AC/DC • Integrated bus coupling units • Bus connection over bus terminal and contact system to data rail • Modular installation devices for mounting on TH35 EN 60715 mounting rail • Width: 4 MW (1 MW = 18 mm)

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS* / P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
 N 670	Universal N 670 I/O modules¹⁾ 2 x universal I/O, 2 inputs Pt1000, 2 outputs 230 V AC, 10 A	►	5WG1 670-1AB03		1	1	030	0.220

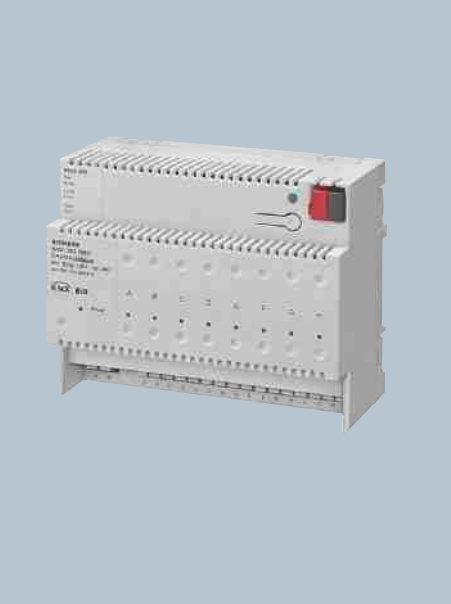
5WG1 670-1AB03

¹⁾ The external power supply unit with 24 V AC/DC must be ordered separately (e.g. 4AC2 402).

Output Devices

2

Notes



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Introduction

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Binary input devices

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Analog input devices

3

Input Devices

Introduction

3

Overview

Devices		Application	Page
	Binary input devices	Binary inputs monitor switching states and signal them on the GAMMA <u>instabus</u> .	3/3
	Analog input devices	Flexible application: the universal I/O module provides flexible inputs and outputs.	3/6

Technical specifications

Type												
		N 262E	N 263E	N 262E11	N 263E11	N 264E11	N 260	N 261	GE 262/02	UP 220/02	UP 220/03	UP 220/13
Enclosure data												
Modular installation devices for mounting on TH35 EN 60715 mounting rail		✓	✓	✓	✓	✓	✓	✓	--	--	--	--
For insertion in flush-mounting switch and socket boxes with Ø = 60 mm and depth = 60 mm		--	--	--	--	--	--	--	--	✓	✓	✓
Enclosures for device installation		--	--	--	--	--	--	--	✓	--	--	--
Dimensions												
• Height	mm											
• Width (1 MW = 18 mm)	mm	6 MW	6 MW	6 MW	6 MW	6 MW	2 MW	2 MW	42	38	42	42
• Depth	mm								274.5	43	42	42
									28	17.6	8.5	8.5
Display/control elements												
LED for status indication per input		✓	✓	✓	✓	✓	--	--	--	--	--	--
Power supply												
Electronics powered over bus voltage		--	--	--	--	--	✓	✓	✓	✓	✓	✓
Electronics powered over an integrated power supply unit for supply voltage 230 V AC		✓	✓	✓	✓	✓	--	--	--	--	--	--
Bus connection												
Integrated bus coupling units		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bus connection over contact system to data rail		✓	✓	✓	✓	✓	✓	✓	--	--	--	--
Bus connection via bus terminal		✓	✓	✓	✓	✓	--	--	✓	✓	✓	✓
Inputs												
Max. cable length, unshielded, untwisted	m	100	100	100	100	100	100	100	100	5	10	10
Pushbutton inputs												
For signal input (floating contacts)		8	--	16	--	8	--	--	4	4	4	2
Determination of switching state over the voltage generated in the device		✓	--	✓	--	✓	--	--	✓	✓	✓	✓
For voltage input (with common ground (N) or (-))		--	✓	--	✓	✓	✓	✓	--	--	--	--
• 230 V AC		--	--	--	--	--	4	--	--	--	--	--
• 24 V AC/DC		--	--	--	--	--	--	4	--	--	--	--
• 12 ... 230 V AC/DC		--	8	--	--	8	--	--	--	--	--	--
• 12 ... 230 V AC/12 ... 115 V DC		--	--	--	16	--	--	--	--	--	--	--

For selection and ordering data, see page 3/5.

Input Devices

Binary input devices

3

Type	N 262E		N 263E		N 262E11		N 263E11		N 264E11		N 260			N 261			GE 262/02			UP 220/02			UP 220/03		UP 220/13	
Application program	980901	980901	980901	980901	980901	980901	240505	240A01	220703	240505	240A01	220703	240505	240A01	220703	900901	240505	220710	240505	220710	240505	220710				
Input functions																										
Max. number of group addresses	97	97	97	97	97	14	8	27		14	8	27	14	8	27	20	14	12	14	12						
Max. number of assignments	97	97	97	97	97	16	9	27		16	9	27	16	9	27	20	16	12	16	12						
Telegram rate limitations	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	✓	✓	--				
Configurable debounce time	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Locking of inputs using locking objects	✓	✓	✓	✓	✓	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Adjustable duration of long button press	✓	✓	✓	✓	✓	--	--	✓		--	--	✓	--	--	✓	✓	✓	--	--	--	--	--				
Configurable contact type (NO contact/NC contact)	✓	✓	✓	✓	✓	--	✓	✓		--	✓	✓	--	✓	✓	✓	✓	--	✓	--	✓	✓				
Transmission parameters																										
Adjustable cyclic transmission	✓	✓		✓	✓	✓	✓	✓	--	✓	✓	--	✓	✓	✓	✓	✓	--	✓	✓	✓	--				
Configurable transmission in the event of changes to the input	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Configurable transmission in the event of bus power recovery	✓		✓	✓	✓	✓	✓	--	--	✓	--	--	✓	--	✓	✓	✓	--	✓	--	✓	--				
Transmission delay with adjustable delay time	--	--	--	--	--	--	✓	--		--	✓	--	--	✓	--	✓	--	--	--	--	--	--				
Configurable event-controlled transmission	--	--	--	--	--	✓	--	--		✓	--	--	✓	--	✓	✓	✓	--	✓	--	✓	--				
Switching																										
Switching ON/OFF																										
• Rising edge	✓	✓	✓	✓	✓	✓	--	✓	✓	✓	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
• Falling edge	✓	✓	✓	✓	✓	✓	--	✓	✓	✓	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
• Rising and falling edge	✓	✓	✓	✓	✓	✓	--	✓	✓	✓	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
• Short/long button press can be evaluated	✓	✓				✓	--	✓		✓	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Switching OVER																										
• Rising edge	✓	✓	✓	✓	✓	✓	--	--	✓	--	--	✓	--	--	✓	✓	✓	--	✓	--	✓	--				
• Falling edge	✓	✓	✓	✓	✓	✓	--	--	✓	--	--	✓	--	--	✓	✓	✓	--	✓	--	✓	--				
• Rising and falling edge	✓	✓	✓	✓	✓	--	--	✓	--	--	--	✓	--	--	✓	✓	✓	--	✓	--	✓	--				
Value transmission																										
8 bit																										
• Rising edge	✓	✓	✓	✓	✓	--	✓	✓		--	✓	✓	--	✓	--	✓	✓	--	✓	--	✓	✓				
• Falling edge	✓	✓	✓	✓	✓	--	✓	✓		--	✓	✓	--	✓	✓	✓	✓	--	✓	--	✓	✓				
• Rising and falling edge	✓	✓	✓	✓	✓	--	--	✓		--	✓	✓	--	✓	✓	✓	✓	--	✓	--	✓	✓				
• Short/long button press can be evaluated	✓	✓			✓	--	--	--		--	--	--	--	--	--	--	✓	--	✓	--	✓	✓				
16 bit																										
• Rising edge	✓	✓	✓	✓	✓	--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--				
• Falling edge	✓	✓	✓	✓	✓	--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--				
• Rising and falling edge	✓	✓	✓	✓	✓	--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--				
• Configurable short/long button press																										
Dimming																										
1-pushbutton dimming	✓	✓	✓	✓	✓	--	--	--		--	--	--	--	--	--	✓	--	--	--	--	--	--				
2-pushbutton dimming with stop telegram (4 bit)	✓	✓	✓	✓	✓	--	--	✓		--	--	✓	--	--	✓	✓	✓	--	✓	--	✓	✓				
2-pushbutton dimming with cyclic transmission (4 bit)	--	--	--	--	--	--	--	✓		--	--	✓	--	--	✓	✓	✓	--	--	--	--	--				
2-pushbutton dimming with value setting (8 bit)	--	--				--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--				
Short/long button press can be evaluated	✓	✓	✓	✓	✓	--	--	--		--	--	--	--	--	--	✓	--	✓	--	✓	--	✓				
Shutter/blind																										
1-pushbutton shutter/blind control	✓	✓	✓	✓	✓	--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--				
2-pushbutton shutter/blind control	✓	✓	✓	✓	✓	--	--	✓		--	--	✓	--	--	✓	✓	✓	--	--	--	--	--				
Short/long button press can be evaluated	✓	✓	✓	✓	✓	--	--	--		--	--	--	--	--	--	✓	--	--	--	--	--	--				
Scene																										
Store and call up scene, 8-bit	✓	✓	✓	✓	✓	--	--	--		--	--	--	--	--	--	--	--	✓	--	--	✓	✓				
Store and call up scene, 1-bit in conjunction with scene module	✓		✓		✓	--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--				
Pulse counting																										
Pulse counting with/without limit value monitoring (8 bit, 16 bit, 32 bit)	✓	✓	✓	✓	✓	--	--	--		--	--	--	--	--	--	--	--	✓	--	--	✓	✓				
Group control																										
1-pushbutton group control	✓	✓	✓	✓	✓	--	--	--		--	--	--	--	--	--	--	--	✓	--	--	✓	✓				

For selection and ordering data, see page 3/5.

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
	N 262E	N 262E binary input devices 8 inputs for floating contacts	▶	5WG1 262-1EB01		1	1	030	0.374
	N 263E	N 263E binary input devices 8 inputs for 12 ... 230 V AC/DC	▶	5WG1 263-1EB01		1	1	030	0.280
	N 262E11	N 262E11 binary input devices 16 inputs for floating contacts	▶	5WG1 262-1EB11		1	1	030	0.414
	N 263E11	N 263E11 binary input devices 16 inputs for 12 ... 230 V AC / 12 ... 115 V DC	▶	5WG1 263-1EB11		1	1	030	0.325
	N 264E11	N 264E11 binary input devices 2 x 8 inputs , 8 for 12 ... 230 V AC/DC, 8 for floating contacts	▶	5WG1 264-1EB11		1	1	030	0.414
	N 260	N 260 binary inputs 4 inputs for 230 V AC	X	5WG1 260-1AB01		1	1	030	0.105
	N 261	N 261 binary inputs 4 inputs for 24 V AC/DC	X	5WG1 261-1AB01		1	1	030	0.105
	GE 262/02	GE 262/02 binary inputs 4 inputs for floating contacts	▶	5WG1 262-4AB02		1	1	030	0.140
	UP 220/02	UP 220/02 pushbutton interfaces 4 inputs for floating contacts	UL ▶	5WG1 220-2AB02		1	1	030	0.043
	UP 220/03	UP 220/03 pushbutton interfaces 4 inputs for floating contacts	UL ▶	5WG1 220-2AB03		1	1	030	0.020
	UP 220/13	UP 220/13 pushbutton interfaces 2 inputs for floating contacts	UL ▶	5WG1 220-2AB13		1	1	030	0.015

Input Devices

Analog input devices

3

Technical specifications

Type	Description
 N 670	Universal N 670 I/O modules • 2 universal inputs/outputs, each adjustable as - Analog input 0 V ... 10 V DC - Analog output 0 V ... 10 V DC - Binary input for 10 V DC - Binary output for 10 V DC • Analog input with limit value monitoring and signaling, with adjustable limit values and hysteresis • Analog output with adjustable lower and upper limit of the output voltage with adjustable voltage value in the event of bus voltage failure and recovery • Binary input with pulse edge evaluation • Binary output with adjustable switching position in the event of bus voltage failure and recovery • 2 inputs for the connection of temperature sensors with Pt1000 measured element for temperature measurement in the range -25 °C ... +45 °C, with limit value monitoring and signaling, with adjustable limit values and hysteresis • 2 binary outputs, relay contacts rated for 230 V AC, 10 A at p.f. = 1, with - Configurable actuated position (NO contact/NC contact) - Positively driven operation - Configurable switching position in the event of bus voltage failure and recovery • Electronics powered over an external power supply unit for 24 V AC/DC • Integrated bus coupling units • Bus connection over bus terminal and contact system to data rail • Modular installation devices for mounting on TH35 EN 60715 mounting rail • Width: 4 MW (1 MW = 18 mm)

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
 N 670	Universal N 670 I/O modules¹⁾ 2 x universal I/O, 2 inputs Pt1000, 2 outputs 230 V AC, 10 A	►	5WG1 670-1AB03		1	1	030	0.220

5WG1 670-1AB03

¹⁾ The external power supply unit with 24 V AC/DC must be ordered separately (e.g. 4AC2 402).

Combination Devices

4



4/2

Introduction

4/3

Input/output devices

4

Combination Devices

Introduction

Overview

Devices		Application	Page
	Input/output devices	Combine inputs and outputs to devices for flexible application	4/3

Technical specifications

									
Type		N 502	N 670/03	N 605	N 605/11	N 526/02	N 266	UP 511/10	UP 562/31
Application program		981501	900501	906101	906202	905303	241C01	207201	207101
Enclosure data									
Design		N	N	N	N	N	N	UP	UP
Modular installation devices for mounting on TH35 EN 60715 mounting rail		✓	✓	✓	✓	✓	✓	--	--
For installation in flush-mounting switch and socket boxes with Ø = 60 mm and depth = 60 mm		--	--	--	--	--	--	✓	✓
Dimensions									
• Width/Ø (1 MW = 18 mm)	mm	8 MW	4 MW	6 MW	6 MW	6 MW	4 MW	Ø 53	Ø 53
• Depth	mm							28	28
Display/control elements									
LED for status indication per input		✓	--	--	--	✓	✓	--	--
LED for status indication per output		✓	--	✓	✓	✓	--	--	--
LED for operation/status indication		✓	--	✓	✓	--	--	--	--
Pushbuttons for local operation on the device		✓	--	✓	✓	✓	--	--	--
Power supply									
Electronics powered over an integrated power supply unit, supply voltage 230 V AC		✓	--	✓	✓	✓	--	--	--
Electronics powered over bus voltage		--	--	--	--	--	--	✓	✓
Electronics powered over an external power supply unit		--	24 V AC/DC	--	--	--	12 V DC max. 50 mA	--	--
Bus-dependent operation possible		✓ ¹⁾	--	✓	✓	--	--	--	--
Bus connection									
Integrated bus coupling units		✓	✓	✓	✓	✓	✓	✓	✓
Bus connection via bus terminal		✓	✓	✓	✓	✓	✓	✓	✓
Bus connection over contact system to data rail		✓	✓	--	--	--	--	--	--
Outputs									
Control output									
1 ... 10 V DC		--	--	--	--	3	--	--	--
Max. ECG per output (Osram Dynamic 58 W)		--	--	--	--	50	--	--	--
Two 12 V outputs "walk test" and "setting/unsetting" for the control of passive infrared and motion detectors		--	--	--	--	--	✓	--	--
Load output									
Floating relay contact		8 ²⁾	2	--	--	3	--	1	2
Silent semiconductor switch		--	--	6	6	--	--	--	--
Load types									
Rated contact voltage, AC	V	230	230	230	230	230	--	230	230
Rated contact current	A	16	10	--	--	6	--	16	6
Max. short-time current	A	--	--	1.5	0.5	--	--	--	--
Switching capacity for permanent loading	W	--	--	12	6	--	--	--	--
Protection									
Electronic protection of outputs against overload and short circuit		--	--	✓	✓	--	--	--	--
Universal inputs/outputs									
Adjustable universal inputs/outputs		--	2	--	--	--	--	--	--
Inputs									
Max. cable length, unshielded, untwisted	m	100	--	50	50	100	³⁾	5	5
For signal input (floating contact)		--	--	2 x 3	2 x 3	--	4	2	2
Determination of switching state over the voltage generated in the device		--	--	✓	✓	--	--	✓	✓
For voltage input (with common ground)		✓	--	--	--	--	--	--	--
• 12 ... 230 V AC/DC		8	--	--	--	--	--	--	--
PT1000 temperature sensor input		--	2	--	--	--	--	--	--
Brightness sensor input for UP 255/AP 255		--	--	--	--	3	--	--	--

¹⁾ Each output affects the output of the same name, adjustable as timer or impulse relay.

²⁾ Except channel A.

³⁾ On request.

For selection and ordering data, see page 4/6.

Combination Devices

Input/output devices

4

Type	Description
 N 502	N 502 combination switch actuators - Outputs identical or can be individually configured - Operating mode can be adjusted for each output (normal mode, timer mode) - Switching behavior can be adjusted for each output (NO contact/NC contact) - Adjustable ON/OFF delay - Selectable logic operation (AND/OR) of two communication objects and adjustable start value of operation in the event of bus power recovery - Object can be added per output, night mode for limited ON switching of lighting during the night - Adjustable ON period during night or timer mode - Selectable warning of impending OFF by turning the device briefly on and off three times (flashing) during night or timer mode - Object for status indication can be added for each output - Transmission of status objects on demand and/or automatically after modification - Integrated 8-bit scene control and integration of each channel in up to 8 scenes - Unchanged switching state of all outputs during power failure - Switching state can be adjusted for each output after system recovery
 N 670	Universal N 670 I/O modules 2 x universal I/O, 2 inputs for PT1000, 2 outputs 230 V AC, 10 A 2 universal inputs/outputs, each adjustable as - Analog input 0 V ... 10 V DC - Analog output 0 V ... 10 V DC - Binary input for 10 V DC - Binary output for 10 V DC - Analog output with adjustable lower and upper limit of the output voltage with adjustable voltage value in the event of bus voltage failure and recovery - Binary input with pulse edge evaluation - Configurable actuated position (NO contact/NC contact) - Positively driven operation - Configurable behavior in the event of a bus power failure/recovery - Analog input and PT1000 input with - Limit value monitoring - Limit value signal - Adjustable limit values - Adjustable hysteresis
 N 605	N 605 thermal drive actuators With 6 inputs and outputs each - For control of electrothermal actuators for small valves for heaters and cooling ceilings - Configurable contact type (NO contact/NC contact) - Configurable transmission of the input status objects by request, in case of change, cyclically and/or in case of bus or system voltage recovery - Signaling of a short-circuited or overloaded output and de-energizing of this output - Configurable valve open and close time - Configurable valve state (open or closed) in case of de-energized output - Adjustment to a non-linear valve characteristic curve - With configurable control per output either by positioning commands in percentage or by ON/OFF switch commands - Conversion of percentage positioning commands into pulse width modulated switch commands - With per output configurable position in case of an open window - With transmission of an output status object on request or if the switching state change - Configurable behavior in the event of a bus power failure - With optional calcification protection - Configurable transmission
 N 605/11	N 605/11 thermal drive actuators 6 inputs, 2 x 3 outputs for control of 2 heating/cooling mats - For control of electrothermal actuators for small valves for heaters and cooling ceilings - Configurable contact type (NO contact/NC contact) 6 outputs, each with one silent semiconductor switch, divided into 2 groups, each with 3 outputs and fixed assignment of outputs to the forward flow and return valves - Configurable valve open and close time - Signaling of a short-circuited or overloaded output and de-energizing of all outputs of the respective group - Control of all outputs over ON/OFF switch command - Transmission of the output status object on request or if the switching state changes, optionally with automatic switchover of the return valve between heating and cooling mode or with switchover of the return valve over an object - De-energizing of return valve output if the forward flow valves are closed - Configurable behavior in the event of a bus power failure - Configurable transmission
 N 526/02	N 526/02 switch/dimming actuators triple, 230 V AC, 6 A, with constant light level control - Integrated constant light level control per output (outputs are master/slave-capable) - Configurable starting value - Adjustable dimming time - Switching ON/OFF - BRIGHTER/DARKER dimming - Switching ON/OFF possible over BRIGHTER/DARKER dimming - Set 8-bit value - Night mode (lighting for cleaning) - Send switching and dimming status - Configurable behavior in the event of a bus power failure/recovery
Accessories	
 AP 255 UP 255	AP 255, UP 255 indoor brightness sensors, For N 526/02 switch/dimming actuators - For direct connection to N 526/02 switch/dimming actuators over a 3-wired cable of up to 100 m in length, which also serves to power the sensor electronics - Plug-in low-voltage terminal for connection of the cable to N 526/02 - Including two rigid optical fiber rods: - Parallel light-sensitive surface for mounting surface - Inclined (45°) light-sensitive surface for mounting surface UP 255 indoor brightness sensors - For mounting in a hollow-wall or flush-mounting box with Ø 58 mm and min. 40 mm mounting depth - Cover made of white plastic (polystyrene) - Dimensions (H x W x D): 30 x 52 x 33 mm AP 255 indoor brightness sensors - For ceiling or wall mounting - Includes surface-mounting enclosure made of white plastic (polypropylene) with Ø 70 mm and 24 mm in height - Dimensions (H x W x D): 30 x 72 x 33 mm

Type	Description
 N 266	N 266 detector group terminals With 4 monitored inputs for passive detectors - For the monitored connection of passive detectors (e.g. magnetic contacts) and for the connection of floating contacts in applications with increased safety demands - Setting/unsetting of the detector group terminal over a communication object - With failure message in case of short circuit or interruption of a signal line - Monitoring of the external power supply
 UP 511/10	UP 511/10 switch actuators 16 A, 1 x 230 V AC, 2 x binary inputs - Configurable behavior in the event of a bus power failure/recovery - Locking function - OFF delay - ON delay - Positively driven operation - Logic function (1 object) - Logic function (2 objects) - Can be inverted per output (NO contact/NC contact)
 UP 562/31	UP 562/31 switch actuators 2 x 230 V AC, 6 A, 2 x binary inputs - Configurable behavior in the event of a bus power failure/recovery - Locking function - OFF delay - ON delay - Positively driven operation - Logic function (1 object) - Logic function (2 objects) - Can be inverted per output (NO contact/NC contact)

For selection and ordering data, see page 4/6.

Combination Devices

Input/output devices

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
						Unit(s)	Unit(s)		
 5WG1 502-1AB01	N 502	N 502 combination switch actuators 8 x 230 V AC, 16 A, 8 x binary inputs	 B	5WG1 502-1AB01		1	1	030	0.721
	N 670	Universal N 670 I/O modules¹⁾ 2 x universal I/O, 2 inputs for Pt1000, 2 outputs 230 V AC, 10 A	►	5WG1 670-1AB03		1	1	030	0.220
	N 605	N 605 thermal drive actuators With 6 inputs and outputs	►	5WG1 605-1AB01		1	1	030	0.434
	N 605/11	N 605/11 thermal drive actuators 6 inputs, 2 x 3 outputs for control of 2 heating/cooling mats	►	5WG1 605-1AB11		1	1	030	0.434
	N 526/02	N 526/02 switch/dimming actuators 3 x 230 V AC, 6 A, with constant light level control	►	5WG1 526-1AB02		1	1	030	0.458
	Accessories								
	UP 255	UP 255 indoor brightness sensors N 526/02 switch/dimming actuators	►	5WG1 255-4AB01		1	1	030	0.092
	AP 255	AP 255 indoor brightness sensors N 526/02 switch/dimming actuators	C	5WG1 255-4AB02		1	1	030	0.102
	N 266	N 266 detector group terminals With 4 monitored inputs for passive detectors	B	5WG1 266-1AB01		1	1	030	0.180
 5WG1 266-1AB01									

¹⁾ The external power supply unit with 24 V AC/DC must be ordered separately (e.g. 4AC2 402).

Combination Devices

Input/output devices

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
 5WG1 511-2AB10	UP 511/10		5WG1 511-2AB10		1	1	030	0.115
	UP 511/10 switch actuators 1 x 230 V AC, 16 A, 2 x binary inputs							
 5WG1 562-2AB31	UP 562/31		5WG1 562-2AB31			1		0.100
	UP 562/31 switch actuators 2 x 230 V AC, 6 A, 2 x binary inputs							

* You can order this quantity or a multiple thereof.

Combination Devices

Notes

4



5/2	Introduction
5/5	Dimmers
5/8	Switch/dimming actuators
5/14	Light level controls

Devices for Special Applications

Lighting

Introduction

Overview

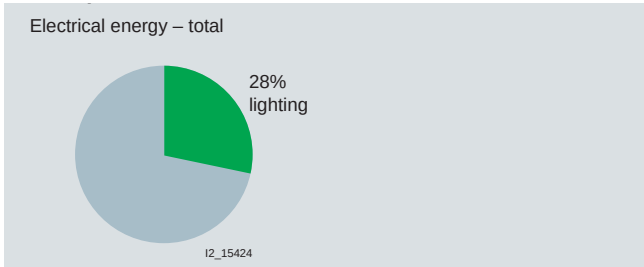
Devices		Application	Page
 	Dimmers	Trailing-edge phase dimmers for dimming incandescent lamps, HV halogen lamps and LV halogen lamps with electronic transformer.	5/5
		Universal dimmers automatically detect the connected load type and adapt accordingly.	5/5
	Switch/dimming actuators	For the switching and dimming of fluorescent lamps with dimmable electronic controlgear.	5/8
	Light level control	Convenience and energy saving in one – these components let you optimize your lighting.	5/14

Function		Application	Section
Switching	Load	Luminous rows	2/3
Dimming	Conventional	Incandescent lamp dimming	5/5
	1 ... 10 V DC	Dimming electronic controlgear	5/8
	DALI	Dimming electronic controlgear	5/8
Controls	Outdoor brightness sensors	Indoor lighting of industrial halls	5/14
Control	Two-step control	Hall/stairway lighting	5/14
	Constant light level control	Office workplace lighting	5/14
Presence control	Motion detector	Hall/stairway lighting	5/14
	Presence detector	Office workplace lighting	5/14
Time control	Day, week, year schedule	Shopping center after opening times	13/5
	Timer mode	Hall/stairway lighting	13/5
	Astro function	Car park lighting	13/5
Scene control	Scenes	Ambient lighting in hotels/restaurants	2/3
	Effects	Changing color LEDs for outer facade	5/8

Energy efficient lighting

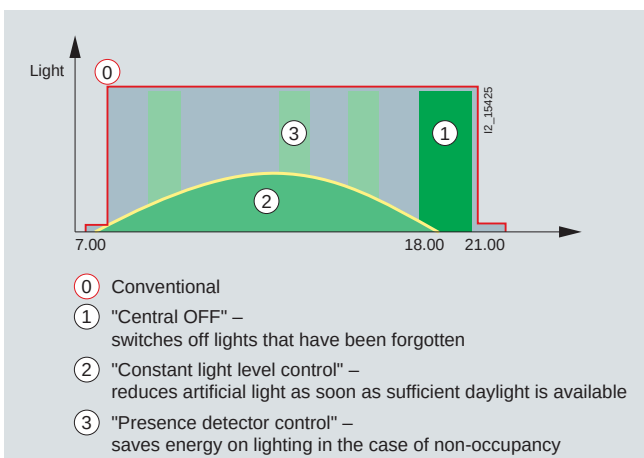
Approx. 28 % of all the electrical energy in a building is used for lighting. Increased demands made on the energy efficiency of buildings require enhanced optimization of energy supply, distribution and use. This goal can only be achieved through automation. Useful automation takes into account the comfort requirements of room users so that room temperature and the level of lighting can be optimally adjusted to the current usage situation. Room users need to be able to adjust their work environment to suit individual requirements.

Savings potential demonstrated using an office building



To reduce energy costs, the artificial lighting of a room can be controlled dependent on time, occupancy and daylight. A range of solutions are available for this purpose, which we shall describe in the following sections and consider their effectiveness with regard to reducing energy costs.

By way of an example, we will demonstrate potential energy savings in an office. In the case of lighting that is not automated, a user profile can be assumed, which is demonstrated in the diagram "Options for potential savings". It is assumed that minimum lighting is switched on at 7 am. From 8 am onwards, the lighting is switched on fully by room users. The lighting is then left on all day until the last person leaves the room and switches off the light. Minimum lighting is typically left running for cleaning purposes. This lighting is then switched off, either by the cleaners or by security.



Potential savings - the gray areas of the diagram represent the energy used in the case of manual light control.

Time-dependent light control

When lighting is switched on by persons entering a room due to the level of lighting, in many cases they forget to switch it off again on leaving. A time-dependent light control would take this into account. Time-dependent light control is either relative in relation to an event or absolute in relation to a time or date. If the time-dependent light control is relative to an event, the lighting is switched off on expiry of a set time or dimmed to a minimum value. The best known example of this type of light control is stairwell lighting control.

In the event of time-dependent light control, the lighting is automatically switched off at a preset time. In order to warn users of an impending off, the lighting can be set to flash prior to the action or, depending on the equipment, dimmed to a preset value. This gives users the opportunity to delay the switch off by a set time, e.g. 60 minutes, by overriding it manually.

The diagram "Potential savings quantified" shows the effect of time-dependent light control on energy consumption.

By switching off lighting centrally, energy consumption can be reduced by 18 %.

Daylight-dependent light control

There are generally two methods for the daylight-dependent control of the brightness in a room: light control over a brightness sensor in the room (constant light level control) or light control over an outdoor brightness sensor in combination with control devices, which take into account the direction of the window, the geometry of the window and the possibility of objects that may throw shadows (buildings, trees).

There are arguments in favor of both methods. While the daylight-dependent light control requires fewer sensors than other light controls, commissioning involves considerably higher engineering costs. The level of lighting can be kept at a preset or user-defined value by a constant light level control in a way that optimally utilizes the available daylight and reduces energy costs. In order to utilize the daylight and offer anti-glare protection, the slats of the relevant shutter/blinds can be controlled so that these permit the penetration of available daylight while preventing the glare of direct sunlight. Preventing direct sunlight from penetrating the room also prevents the room from becoming too hot.

Presence-dependent light control

Many rooms are only used for part of the day so that a presence-dependent daylight control system could be usefully implemented to reduce energy costs.

Using presence detectors, room functions can be automatically switched from comfort mode to ready-to-run or energy-saving mode. They can also be used in combination with an access control or controlled manually or over a preset time. In corridors the lighting can be switched off outside the main periods of use and only switched back on when the presence of persons is detected. Within the main periods of use, the lighting can also be dimmed to a minimum brightness level if there are no persons present. This achieves optimum energy savings and extends the service life of lighting.

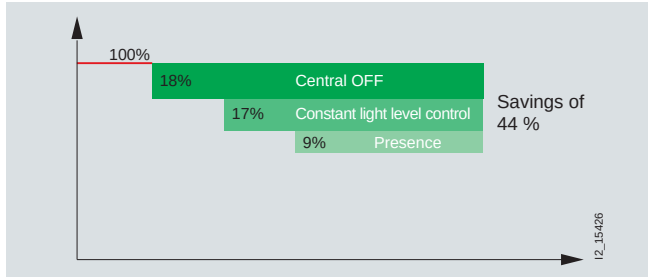
If operation of the corridor lighting is presence-dependent, the right level of lighting is always delivered as and when required. And energy consumption is in keeping with actual requirements. This also applies to outdoor and path lighting that switches on depending on brightness, movement and time - and is therefore always on when required.

Devices for Special Applications

Lighting

Introduction

The image "Potential savings quantified" shows the effect of presence-dependent light control on energy consumption during the day.

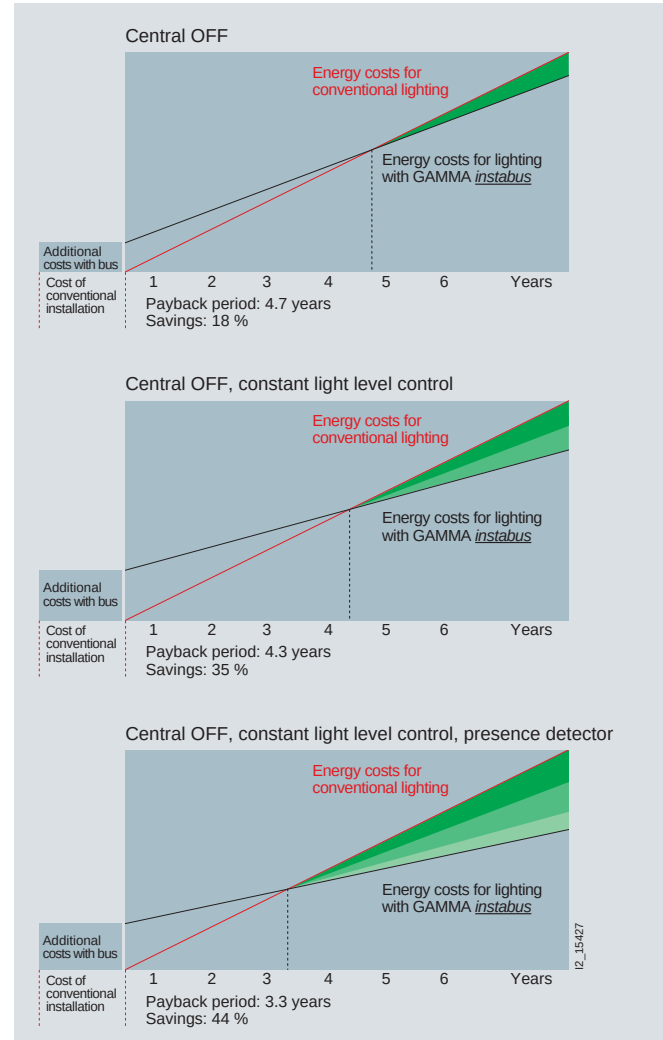


Potential savings quantified

The reduction in energy costs achieved by using light controls that are time, daylight and occupancy-dependent is approx. 44 %.

Cost efficiency

The cost-effectiveness can also be expressed in the time it takes to recoup the investment made in the savings method used. Our example allows the calculation of a payback period of 3.3 years if using a light control system with KNX components.



Technical specifications

					
Type	N 527/02	N 528/02	UP 525	UP 525/11	UP 525/31
Enclosure data					
Design	N	N	UP	UP	UP
Modular installation devices for mounting on TH35 EN 60715 mounting rail	✓	✓	--	--	--
For installation in flush-mounting switch and socket boxes with Ø = 60 mm and depth = 60 mm	--	--	✓	✓	✓
Integrated peripheral external interface for plugging in a single to quadruple bus pushbutton	--	--	✓	--	--
Dimensions					
• Height	mm		71	51	
• Width (1 MW = 18 mm)	mm		71	44	Ø 53
• Depth	mm		40	40	28
Mounting type					
Screw fixing	--	--	✓	--	--
Power supply					
Electronics powered over bus voltage	✓	✓	✓	✓	✓
Bus connection					
Integrated bus coupling units	✓	✓	✓	✓	✓
Bus connection via bus terminal	✓	✓	✓	✓	--
Bus connection over contact system to data rail	✓	✓	--	--	✓
Outputs					
Load output					
Number of channels	1	1	1	1	1
Load type					
Load					
Contact rated voltage	230 V AC, 50/60 Hz	230 V AC, 50/60 Hz	230 V AC, 50 Hz	230 V AC, 50 Hz	230 V AC, 50/60 Hz
Dimmer output VA	20 ... 500	20 ... 250	20 ... 250	20 ... 250	50 ... 210
Protection					
Electronic protection of outputs against overload and short circuit	✓	✓	✓	✓	✓
Inputs					
Max. cable length, unshielded, untwisted	--	--	--	--	5
For signal inputs (floating contact)	--	--	--	--	2
Determination of switching state over the voltage generated in the device	--	--	--	--	✓

Devices for Special Applications

Lighting

Dimmers

					
Type	N 527/02	N 528/02	UP 525	UP 525/11	UP 525/31
Application program	906703	906703	1)	903002	301901
Output functions					
Max. number of group addresses	23	23	38	38	26
Max. number of assignments	24	24	38	38	27
Switching ON/OFF	✓	✓	✓	✓	✓
Configurable starting value	✓	✓	✓	✓	✓
BRIGHTER/DARKER dimming	✓	✓	✓	✓	✓
Adjustable dimming range	✓	✓	✓	✓	✓
Minimum dimming value (basic brightness)					
Maximum dimming value					
Operation of 2 dimming modules (using two different dimming time curves)	✓	✓	--	--	--
Dim or startup 8-bit value	✓	✓	✓	✓	✓
Configurable behavior in the event of a bus power failure	✓	✓	--	--	✓
Configurable behavior in the event of a bus power recovery	✓	✓	✓	✓	✓
Status					
Transmitting switch and dimming status	✓	✓	✓	✓	✓
Fault indications overload/short circuit/overtemperature on bus	✓	✓	--	--	--

1) See table "Application programs and pushbuttons for use with UP 525".

For selection and ordering data, see page 5/7.

Application programs and pushbuttons for use with UP 525

For design	i-system				DELTA profil/style			DELTA ambiente
Application program	903902	903A02	903C02	903D02	903402	903502	903602	903802
Can be used with pushbuttons	UP 221	UP 222	UP 221E	UP 222E	UP 241 UP 242 UP 285	UP 243 UP 244 UP 286	UP 245, UP 246 UP 287	UP 284
Number of pushbutton pairs	1	2	1	2	1	2	4	4

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
 5WG1 527-1AB02 5WG1 528-1AB02	N 527/02	N 527/02 universal dimmers 20 ... 500 VA, 230 V AC, 50/60 Hz 	►	5WG1 527-1AB02		1	1	030	0.216
	N 528/02	N 528/02 universal dimmers 20 ... 250 VA, 230 V AC, 50/60 Hz 	►	5WG1 528-1AB02		1	1	030	0.216
 5WG1 525-2AB01	UP 525	UP 525 trailing-edge phase dimmers 250 VA, 230 V AC, 50 Hz, with PEI 	►	5WG1 525-2AB01		1	1	030	0.055
 5WG1 525-2AB11	UP 525/11	UP 525/11 trailing-edge phase dimmers 250 VA, 230 V AC, 50 Hz, without PEI 	►	5WG1 525-2AB11		1	1	030	0.055
 5WG1 525-2AB31	UP 525/31	UP 525/31 universal dimmers 210 VA, 230 V AC, 50 Hz 	NEW ►	5WG1 525-2AB31			1		0.100

Devices for Special Applications

Lighting

Switch/dimming actuators

Overview

DALI – simple and easy to manage

Digital Addressable Lighting Interface (DALI) was launched on the market in 2004 as a substitute for the classic 1 ... 10 V interface and is an interface definition for the control of up to 64 DALI devices, primarily ECGs, over a control device that acts as a master.

DALI communication enables the simultaneous control of all DALI devices using the same command (broadcast). In the event of control via broadcast, all DALI devices behave as if they are being mutually controlled over a 1 ... 10 V interface. As a second control option, DALI supports the assignment of a DALI device to one of up to 16 groups (group addressing).

DALI also allows the control of each DALI device individually (individual addressing). Individual addressing means that the control device can be interrogated for the failure of a lamp or ECG as well the switching status and current dimming value. This means that the operating state of each lamp group and even each lamp is constantly available to higher-level systems.

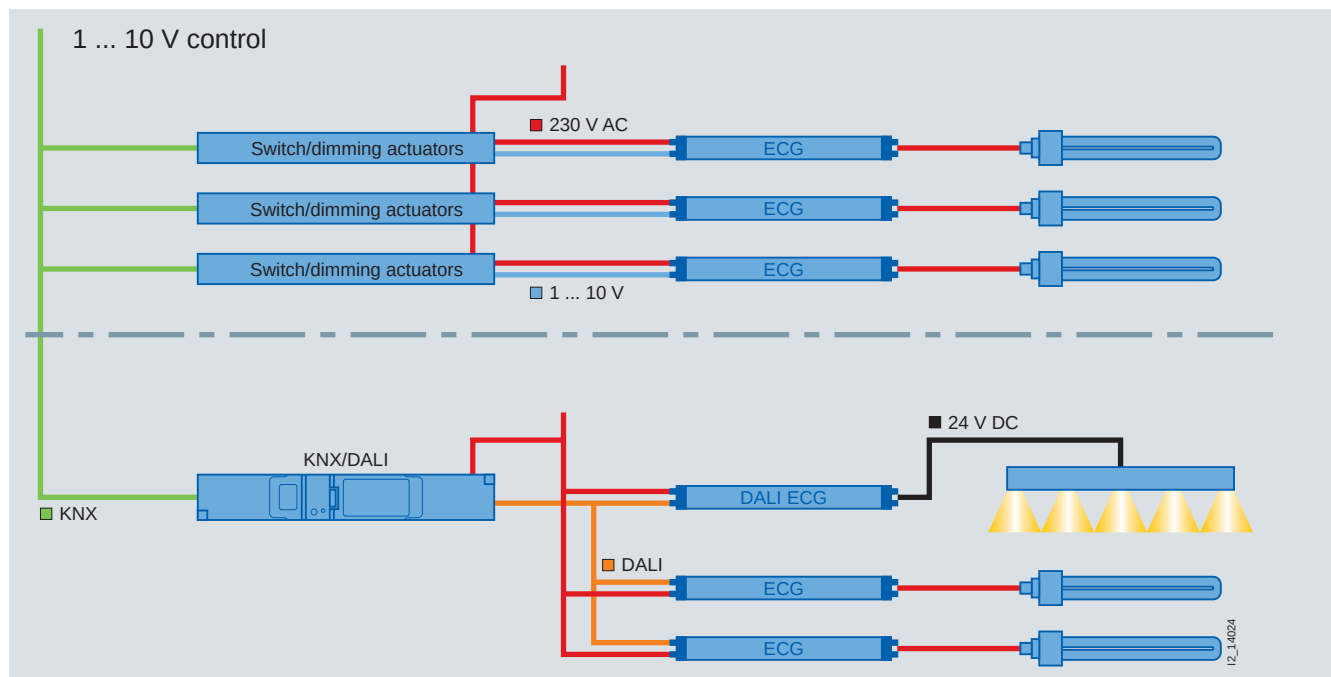
DALI supports assignment of DALI devices to up to 16 scenes. The specific settings for each scene are stored in the individual DALI devices and can be called up by a single command. This allows even complex scenes or very fast command sequences to be called up. The cost of dimming with KNX and DALI is no higher than 1 ... 10 V.

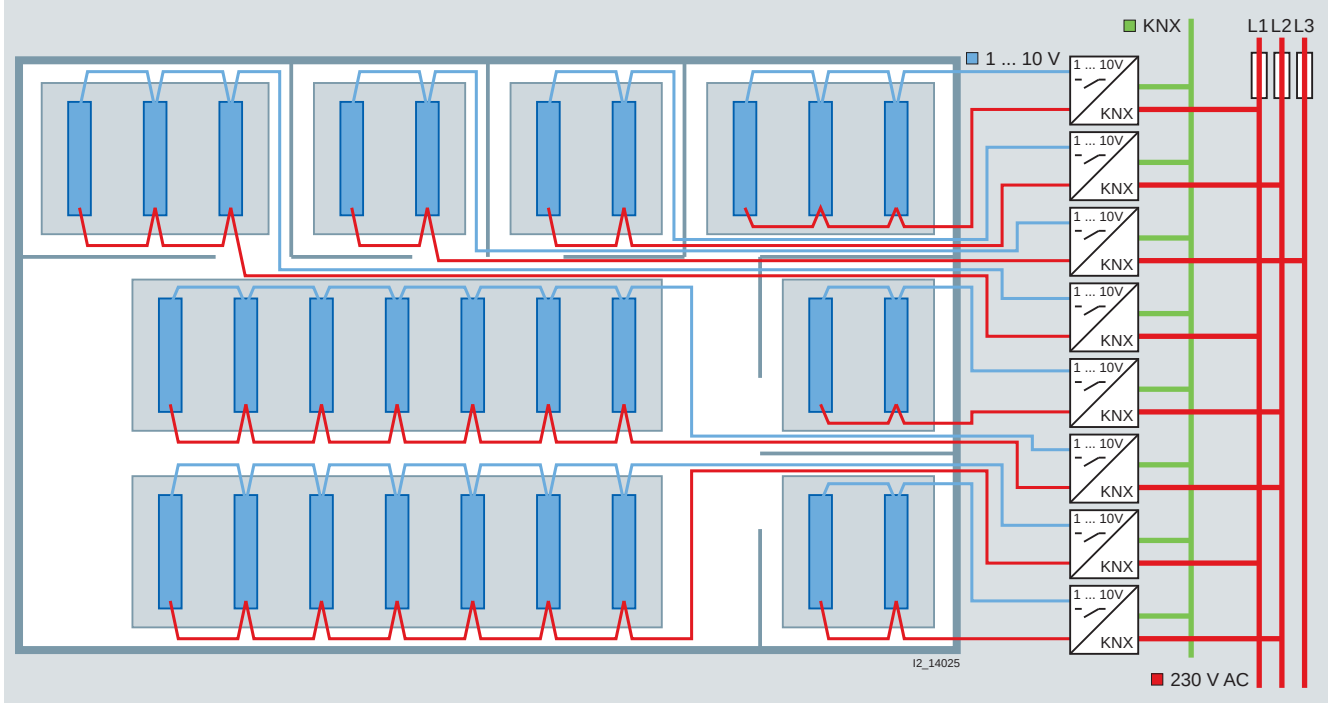
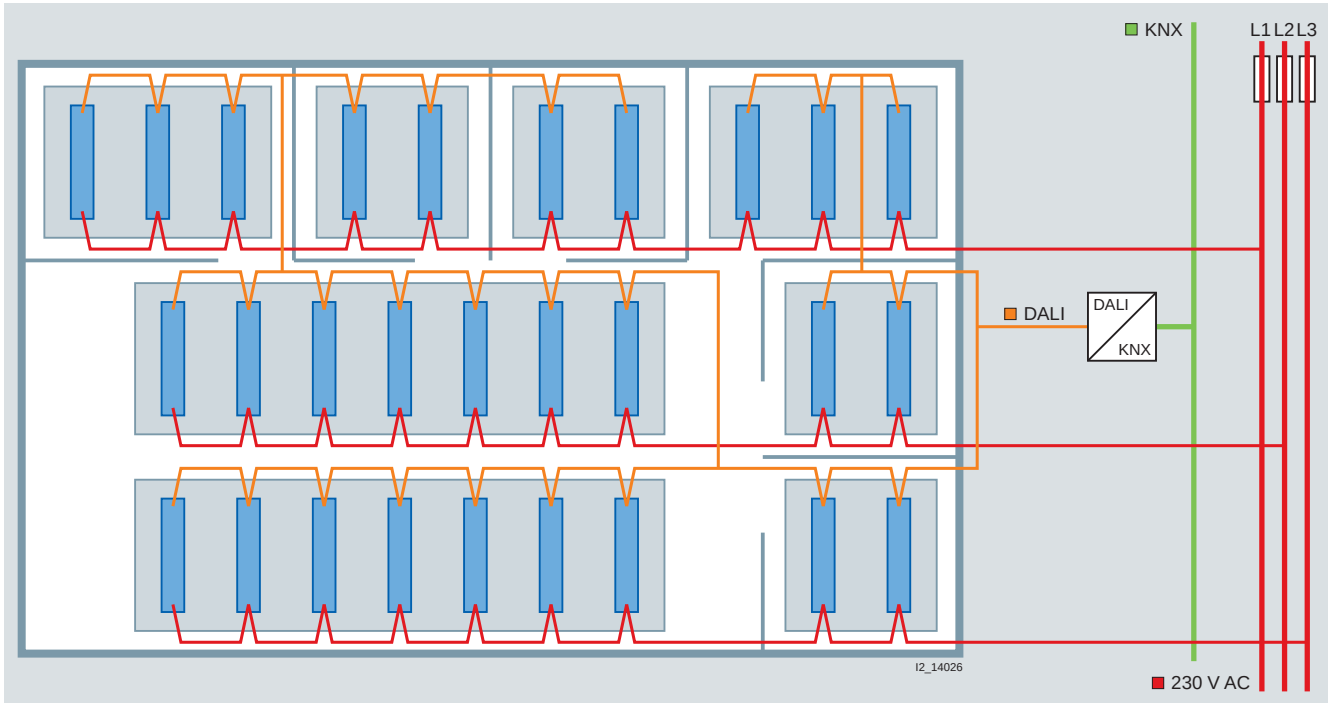
Comparing the degree of cabling required for DALI and for 1 ... 10 V, and the difference in cost for material and labor, the cost of implementing a project with DALI is approx. a third cheaper than when using 1 ... 10 V.

In the simplest of cases, a control device for light control with DALI can comprise a brightness sensor, a presence detector or a combined brightness sensor/presence detector, which can control a group of lamps - depending on occupancy and daylight. With these simple local applications, where DALI is used by sensors as an interface to one or more DALI devices, the broadcast method is used instead of the classic control method over 1 ... 10 V. As such, these applications are not to be regarded as a networked system.

More high-performance control devices, such as the GE 141 EIB-DALI interface or the N141 *instabus*/DALI-Gateway from Siemens, tap into all the options offered by DALI.

Compare 1 ... 10 V control to DALI



Wiring of lighting groups 1 ... 10 V controlWiring of lighting groups with DALI

Advantages:

- Light groups are not hard-wired
- Separate planning of control cables and power supply
- Even load distribution in the power supply
- Lower fire load due to fewer cables
- Planning is easier and faster

Devices for Special Applications

Lighting

Switch/dimming actuators

Technical specifications

Type	DALI control output		Control output 1 ... 10 V DC		
	 N 141 802701	 N 525E 980801	 N 526/02 905303	 N 526E02 981301	 N 525/02 905001
Enclosure data					
Design	N	N	N	N	N
Modular installation devices for mounting on TH35 EN 60715 mounting rail	✓	✓	✓	✓	✓
Modular installation device in oblong design, for installation in luminaires for fluorescent lamps	--	--	--	--	--
Dimensions					
• Height	mm	mm	mm	mm	mm
• Width (1 MW = 18 mm)	4 MW	4 MW	6 MW	8 MW	4 MW
• Depth	mm	mm	mm	mm	mm
Display/control elements					
Mechanical switching position display for status indication per output	--	--	--	✓	✓
LEDs for fault indication (lighting failure) per output	✓	✓	✓	--	--
Pushbuttons for local operation on the device	✓	✓	✓	--	--
Direct operation (local operation)	✓	✓	--	--	--
Mechanical local operation	--	--	--	✓	✓
Mechanical switching position display	--	--	--	✓	✓
Power supply					
Electronics powered over bus voltage	--	--	--	✓	✓
With electronics powered over an integrated power supply unit	✓	✓	✓	--	--
DALI outputs powered over an integrated power supply unit	✓	✓	--	--	--
Bus connection					
Integrated bus coupling units	✓	✓	✓	✓	✓
Bus connection over contact system to data rail	✓	✓	--	✓	✓
Bus connection via bus terminal	✓	✓	✓	✓	--
Outputs					
Control output					
1 ... 10 V DC	--	--	3	8	1
DALI outputs (lines)	1	8	--	--	--
Max. ECG per output (Osram Dynamik 58 W)	64 units	8 units	50 units	60 units	50 units
Load output²⁾					
Floating relay contacts	--	--	3¹⁾	8	1
Contact rated voltage, AC	V	--	230	230	230
Contact rated current	A	--	6	16	16
Inputs					
Sensor inputs					
Input for AP 255/UP 255 brightness sensor	--	--	3	--	--
Max. cable length, unshielded, untwisted	m	--	100	--	--

¹⁾ Except channel A.

²⁾ For load data, see chapter "Technical Information".

For selection and ordering data, see page 5/13.

Devices for Special Applications

Lighting

Switch/dimming actuators

	DALI control output		Control output 1 ... 10 V DC		
					
Type	N 141	N 525E	N 526/02	N 526E02	N 525/02
Application program	802701	980801	905303	981301	905001
Functions					
Max. number of group addresses	253	108	35	250	38
Max. number of assignments	253	107	47	250	38
Integrated constant light level control	--	--	✓	--	--
Configurable behavior in the event of a bus power failure	✓	✓	✓	✓	✓
Configurable behavior in the event of a bus power recovery	✓	✓	✓	✓	✓
Configurable behavior in the event of a system voltage failure	✓	✓	--	--	--
Configurable behavior in the event of a system voltage recovery	✓	✓	✓	--	--
Switching					
Switching ON/OFF	✓	✓	✓	✓	✓
Configurable starting value	✓	✓	✓	✓	✓
Switching ON/OFF possible over BRIGHTER/DARKER dimming	✓	✓	✓	✓	✓
Dimming					
BRIGHTER/DARKER dimming	✓	✓	✓	✓	✓
Adjustable dimming time	✓	✓	✓	✓	✓
Brightness limitation, adjustable min. dimming value/max. dimming value	✓	✓	--	✓	✓
Value transmission					
Set 8-bit value	✓	✓	✓	✓	✓
Scene control					
Integrated 8-bit scene control	✓	✓	--	✓	--
Scenes to be integrated per DALI output	16	16	--	--	--
Scenes to be integrated per channel	--	--	--	8	--
Effect control					
Integrated effect control (one-off or cyclic chaselight operation, color control)	✓	--	--	--	--
Status					
DALI short circuit	✓	✓ ¹⁾	--	--	--
DALI power supply	✓	✓	--	--	--
Status output (ON/OFF, value, lamp fault, ECG fault)	--	✓	✓ ²⁾	✓ ²⁾	✓ ²⁾
Status group (ON/OFF, value, lamp fault, ECG fault)	✓	--	--	--	--
Status ECG (ON/OFF, value, lamp fault, ECG fault)	✓	--	--	--	--
Time functions					
ON/OFF delay	✓	✓	✓	✓	✓
Timer mode, 1-step (stairwell circuits)	✓	✓	--	✓	✓
Timer mode, 2-step	✓	✓	--	✓	--
Night mode (lighting for cleaning)	✓	✓	✓	✓	--
Warning of impending OFF	✓	✓	--	✓	--

¹⁾ Per channel.

²⁾ Status ON/OFF, value.

For selection and ordering data, see page 5/13.

Devices for Special Applications

Lighting

Switch/dimming actuators

5

Type	Description
  AP 255 UP 255	AP 255, UP 255 indoor brightness sensors For N 526/02 switch/dimming actuators • For measuring the brightness on an illuminated area through measurement of the reflected light • Measuring range: 0 ... 1500 lux (with a reflectance of the illuminated area of approx. 30 %) • For direct connection to N 526/02 switch/dimming actuators over a 3-wired cable of up to 100 m in length, which also serves to power the sensor electronics • Plug-in low-voltage terminal for connection of the cable to N 526/02 • Including two rigid optical fiber rods: - Parallel light-sensitive surface for mounting surface - Inclined (45°) light-sensitive surface for mounting surface UP 255 indoor brightness sensors • For mounting in a hollow-wall or flush-mounting box with Ø 58 mm and min. 40 mm mounting depth • Cover made of white plastic (polystyrene) • Dimensions (H x W x D): 30 x 52 x 33 mm AP 255 indoor brightness sensors • For ceiling or wall mounting • Includes surface-mounting enclosure made of white plastic (polypropylene) with Ø 70 mm and 24 mm in height • Dimensions (H x W x D): 30 x 72 x 33 mm

For selection and ordering data, see page 5/13.

Devices for Special Applications

Lighting

Switch/dimming actuators

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/P. unit Unit(s)	PG	Weight per PU approx. kg
DALI control outputs								
	N 141	<i>instabus</i>/N 141 DALI gateways	UL ▶ 5WG1 141-1AB01		1	1	030	0.200
5WG1 141-1AB01								
	N 525E	N 525E switch/dimming actuators 8 x DALI, 8 ECGs per output	▶ 5WG1 525-1EB01		1	1	030	0.300
5WG1 525-1EB01								
Control outputs 1 ... 10 V DC								
	N 526/02	N 526/02 switch/dimming actuators 3 x 230 V AC, 6 A, with constant light level control	▶ 5WG1 526-1AB02		1	1	030	0.458
5WG1 526-1AB02								
Accessories								
	UP 255	UP 255 indoor brightness sensors N 526/02 switch/dimming actuators	▶ 5WG1 255-4AB01		1	1	030	0.092
	AP 255	AP 255 indoor brightness sensors N 526/02 switch/dimming actuators	C 5WG1 255-4AB02		1	1	030	0.102
	N 526E02	N 526E02 switch/dimming actuators 8 x 230 V AC, 16 A	UL ▶ 5WG1 526-1EB02		1	1	030	0.517
5WG1 526-1EB02								
	N 525/02	N 525/02 switch/dimming actuators 1 x 230 V AC, 16 A	X 5WG1 525-1AB02		1	1	030	0.170
5WG1 525-1AB02								

Devices for Special Applications

Lighting

Light level controls

Overview

Type											
	AP 255/11 UP 255/12	N 526/02	UP 255	AP 255	UP 258/11	UP 258/21	N 342	AP254/02	GE 252	GE 253	GE 254
Control											
Integrated constant light level control	1-channel	3-channel	--	--	--	1-channel	--	--	1-channel	--	1-channel
Integrated two-step control	1-channel	--	--	--	--	1-channel	--	--	1-channel	--	1-channel
Light level control dependent on surrounding light	--	--	--	--	--	--	✓	✓	--	--	--
Light sensor											
External light	--	--	--	--	--	--	--	✓	--	✓	--
Indoor brightness	✓	--	✓	✓	✓	✓	--	--	✓	--	--
Indoor brightness (indirect lighting)	✓	--	--	--	--	--	--	--	--	--	✓
Transmission of brightness values over KNX	✓	--	--	--	✓	✓	--	✓	✓	✓	✓

Technical specifications

Type	UP 255/11	AP 255/12	N 526/02	UP 258/11	UP 258/21	N 342	AP254/02	GE 252	GE 253	GE 254
Enclosure data										
Design	UP	AP	N	UP	UP	N	AP	GE	GE	GE
Modular installation device in oblong design, for installation in luminaires for fluorescent lamps	--	--	--	--	--	--	--	✓	✓	✓
Modular installation devices for mounting on TH35 EN 60715 mounting rail	--	--	✓	--	--	✓	--	--	--	--
Dimensions										
• Height	mm 30	30		87	102		110	42	42	42
• Width (1 MW = 18 mm)	mm 52	52	6 MW	87	102	1 MW	72	274.5	274.5	274.5
• Depth	mm 33	33		60	33		54	28	28	28
Power supply										
Electronics powered over bus voltage	✓	✓	--	✓	✓	--	✓	✓	✓	✓
Electronics powered over an integrated power supply unit, supply voltage 230 V AC	--	--	✓	--	--	✓	--	--	--	--
Bus connection										
Integrated bus coupling units	✓	✓	✓	--	✓	✓	✓	✓	✓	✓
Plug onto UP 110 bus coupling unit	--	--	--	✓	--	--	--	--	--	--
Plug onto UP 114 bus coupling unit	--	--	--	✓	--	--	--	--	--	--
Bus connection via bus terminal	✓	✓	✓	--	✓	--	✓	✓	✓	✓
Bus connection over contact system to data rail	--	--	--	--	--	✓	--	--	--	--

For selection and ordering data, see page 5/16.

Type	Description
UP 255/11 AP 255/12	UP 255/11 and AP 255/12 brightness controllers - For measuring the brightness on an illuminated work area through measurement of the reflected light - Measuring range 0 ... 2000 lux (with a reflectance of the illuminated area of approx. 30 %) - Including two rigid optical fiber rods: - Parallel light-sensitive surface for mounting surface - Inclined (45°) light-sensitive surface for mounting surface - Integrated infrared receiver for calibration of the brightness measurement over an infrared remote control - Transmission of the brightness measured value, either in the event of change and/or cyclically - Optional two-step dimmer control for lamps that can only be switched, or constant light level control for lamps that can be switched and dimmed - Setpoint can be adjusted either over a parameter or a communication object - Starting value of the lighting can be selected when the constant light level control starts up - Optionally with dimming of up to 4 further lamp groups - To the dimming value of the constant light level control or to a dimming value that differs from the dimming value of the constant light level control by an offset value, which can be set per group - Automatic deactivation of the constant light level control by manual BRIGHTER/DARKER dimming or dimming to a preset dimming value - Configurable behavior in the event of a bus power recovery
	UP 255/11 - For mounting in a hollow-wall or flush-mounting box with Ø 58 mm and min. 40 mm mounting depth - Cover made of white plastic (polystyrene) - Dimensions (H x W x D): 30 x 52 x 33 mm
	AP 255/12 - For ceiling or wall mounting - Includes surface-mounting enclosure made of white plastic (polypropylene) with Ø 70 mm and 24 mm in height - Dimensions (H x W x D): 30 x 72 x 33 mm

Type	Description
 N 526/02	N 526/02 switch/dimming actuators, triple 3 x 230 V AC, 50/60 Hz, 6 A, with integrated constant light level control • LED for status indication per input • LED for status indication per output • LED for operation/status indication • Pushbuttons for local operation on the device • 3 control outputs 1 ... 10 V DC • Max. 50 ECG per output (Osram Dynamik 58 W) • 3 floating relay contacts • Rated contact voltage, 230 V AC • Rated contact current 6 A • 3 inputs for AP 255/UP 255 brightness sensors, max. 100 m cable length, unshielded, untwisted • Switching ON/OFF • Configurable starting value • ON/OFF switching possible over BRIGHTER/DARKER dimming • BRIGHTER/DARKER dimming • Adjustable dimming time • Set 8-bit value • Integrated constant light level control per output (outputs are master/slave-capable) • Configurable behavior in the event of a bus power failure/recovery • Send switching and dimming status • Night mode (lighting for cleaning)
	Accessories
  AP 255 UP 255	AP 255/UP 255 indoor brightness sensors For N 526/02 switch/dimming actuators • For measuring the brightness on an illuminated area through measurement of the reflected light • Measuring range: 0 ... 1500 lux (with a reflectance of the illuminated area of approx. 30 %) • For direct connection to N 526/02 switch/dimming actuators over a 3-wired cable of up to 100 m in length, which also serves to power the sensor electronics • Plug-in low-voltage terminal for connection of the cable to N 526/02 • Including two rigid optical fiber rods: - Parallel light-sensitive surface for mounting surface - Inclined (45°) light-sensitive surface for mounting surface UP 255 indoor brightness sensor • For mounting in a hollow-wall or flush-mounting box with Ø 58 mm and min. 40 mm mounting depth • Cover made of white plastic (polystyrene) • Dimensions (H x W x D): 30 x 52 x 33 mm AP 255 indoor brightness sensor • For ceiling or wall mounting • Includes surface-mounting enclosure made of white plastic (polypropylene) with Ø 70 mm and 24 mm in height • Dimensions (H x W x D): 30 x 72 x 33 mm
 N 342	N 342 light level control modules • Ten mutually independent light control functions that control the indoor lighting depending on the outdoor brightness • Shared current outdoor light intensity value for all 10 light control functions, with light intensity measured by an outdoor brightness sensor and sent to a N 342 • Separate brightness curve per light control function • With configuration option per light control function as continuous dimming control for the detection and transmission of dimming commands to dimming or switch/dimming actuators or as 2-step control with hysteresis for detection and transmission of ON/OFF switch commands to switch actuators • Automatic adaptation (shifting) of the respective brightness curve to the desired new indoor brightness when the dimming value is manually changed (e.g. using a bus pushbutton) and restoration of the original curve when the lighting is switched off
 UP 258/11	UP 258/11 presence detectors With brightness sensor • Degree of protection IP20 • Motion • Presence • Range on either side: 5.5 m • Horizontal sensing angle: 360° • Vertical sensing angle: 120° • Measuring range: 100 ... 1600 lux (standard) 25 ... 200 lux (expanded) • For measuring indoor brightness • Transmission of sensor values over bus
 UP 258/21	UP 258/21 presence detectors With constant light level control • For surface mounting • Degree of protection IP20 • Motion • Presence • Horizontal sensing angle: 360° • Vertical sensing angle: 120° • Range on either side: 4 m • Brightness measuring range 10 ... 1500 lux • For measuring indoor brightness • Transmission of sensor values over bus
	Accessories
 AP 258E	AP 258E surface-mounting enclosures UP 258/21 presence detectors • For fixing the presence detector as a surface mounting device • Dimensions (H x W x D): 102 x 102 x 46 mm

Devices for Special Applications

Lighting

Light level controls

5

Type	Description
 AP 254/02	AP 254/02 dual sensors Brightness measurement, temperature measurement, sun protection control, lighting control - For the detection and transmission of brightness and temperature, temperature measuring range -25 °C ... +55 °C, brightness measuring range 1 lux ... 100 kLux, horizontal sensing angle -60° ... +60°, vertical -35° ... +66.5° - For the control of switch, dimming and shutter/blind actuators, depending on the ambient luminosity and/or ambient temperature - One sun protection channel for the automatic control of sun protection equipment, with - Starting and stopping of automation over an object or a dusk threshold - Up to three brightness thresholds for determining the height and position of the shutters/blinds or roller shutters - Optional teach-in of dusk thresholds and brightness thresholds over a teach-in facility - Locking object for the temporary deactivation of the sun protection channel function - Up to four universal channels for the control of switch, dimming and shutter/blind actuators, depending on ambient luminosity and/or temperature. Optionally available with: - Threshold switches for brightness - Threshold switches for temperature - Threshold switches with logical combination of brightness and temperature - Optional teach-in of brightness threshold for each universal channel over an associated teach-in facility - Deactivation option for each universal channel over an associated locking object (1 bit) - Optional second object for transmission of a second telegram on fulfillment of threshold conditions - Electronics powered over bus voltage - Integrated bus coupling units - Bus connection via bus terminal - Surface mounting - Degree of protection, IP54
 GE 252	GE 252 indoor brightness sensors - For measuring indoor brightness 2 m connecting lead of sensor element (cannot be extended) - For surface mounting - For mounting in intermediate ceilings - Degree of protection IP20 - Brightness measuring range 200 ... 1900 lux - Dimensions (H x W x D): Converter: 42 x 274.5 x 28 mm Receiver: 25 x 65.7 x 28.5 mm
 GE 254	GE 254 indoor brightness sensors - With constant light level control - For measuring indoor brightness, taking into account indirect lighting 2 m connecting lead of sensor element (cannot be extended) - For surface mounting - For mounting in intermediate ceilings - Degree of protection IP20 - Brightness measuring range 0 ... 2000 lux - Dimensions (H x W x D): Converter: 42 x 274.5 x 28 mm Receiver: 25 x 65.7 x 28.5 mm
 GE 253	GE 253 outdoor brightness sensors For indoor mounting - For measuring outdoor brightness 2 m connecting lead of sensor element (cannot be extended) - For surface mounting - For mounting in intermediate ceilings - Degree of protection IP20 - Brightness measuring range 0 ... 16000 lux - Dimensions (H x W x D): Converter: 42 x 274.5 x 28 mm Receiver: 25 x 65.7 x 28.5 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	UP 255/11 UP 255/11 brightness controllers	 B	5WG1 255-4AB11		1	1	030	0.030
	AP 255/12 AP 255/12 brightness controllers	 B	5WG1 255-4AB12		1	1	030	0.050

Devices for Special Applications

Lighting

Light level controls

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
 5WG1 526-1AB02	N 526/02		N 526/02 switch/dimming actuators		1	1	030	0.458
			3 x 230 V AC, 6 A, with constant light level control					
			Accessories					
	UP 255		UP 255 indoor brightness sensors		1	1	030	0.092
			N 526/02 switch/dimming actuators					
	AP 255	C	AP 255 indoor brightness sensors		1	1	030	0.102
			N 526/02 switch/dimming actuators					
 5WG1 342-1AB01	N 342	UL B	N 342 light level control modules		1	1	030	0.092
 5WG1 258-2AB11	UP 258/11		UP 258/11 presence detectors¹⁾		1	1	030	0.221
			With brightness sensor					
 5WG1 258-2AB21	UP 258/21		UP 258/21 presence detectors		1	1	030	0.085
			With brightness sensors, constant light level control					
 5WG1 258-3EB21			Accessories					
	AP 258E		AP 258E surface-mounting enclosures		1	5	030	0.220
			For UP 258/21 presence detectors					
 5WG1 254-3EY02	AP 254/02	NEW	AP 254/02 dual sensors		1	1	030	0.153
			Brightness measurement, temperature measurement, sun protection control, lighting control					

¹⁾ The bus coupling unit must be ordered separately.

Devices for Special Applications

Lighting

Light level control

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
 5WG1 253-4AB01	GE 253	GE 253 outdoor brightness sensors	► 5WG1 253-4AB01		1	1	030	0.345
		For indoor mounting						
 5WG1 252-4AB02 5WG1 254-4AB01	GE 252	GE 252 indoor brightness sensors	► 5WG1 252-4AB02		1	1	030	0.345
	GE 254	GE 254 indoor brightness sensors	► 5WG1 254-4AB01		1	1	030	0.345
		For indirect lighting						

Devices for Special Applications

Sun Protection, Anti-Glare Protection, Utilization of Daylight

6



6/2	Introduction
6/4	Anti-glare/sun protection actuators
6/8	Central weather/sun protection systems

Devices for Special Applications

Sun Protection, Anti-Glare Protection, Utilization of Daylight

Introduction

Overview

Devices		Application	Page
	Anti-glare/sun protection actuators	Control of shutters and blinds.	6/4
	Central weather/sun protection systems	The weather system sends the sensor information over the GAMMA <u>instabus</u> .	6/8

Devices for Special Applications

Sun Protection, Anti-Glare Protection, Utilization of Daylight

Introduction

Sunlight tracking control

When using the sunlight tracking control, the blind slats are not completely closed but track the current sun position so that the sun cannot shine directly into the room. However, the spaces between the slats allow as much diffuse daylight into the room as possible and ensure maximum daylight with minimum glare, while at the same time reducing energy costs.

The sunlight tracking function continually adjusts the blind slats so that they are constantly at right angles to the sun. This optimizes the utilization of daylight.

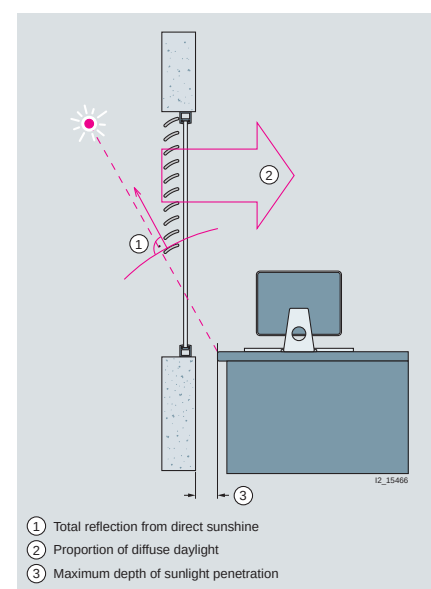
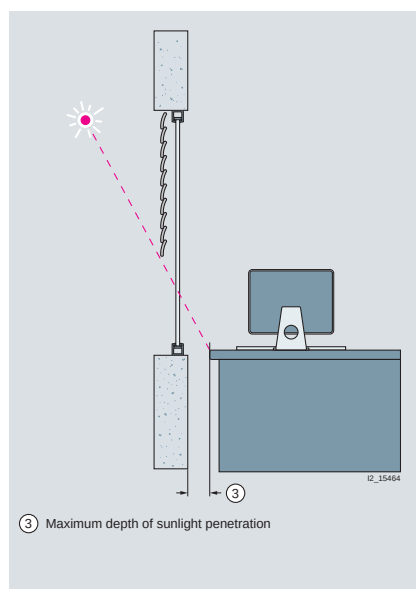
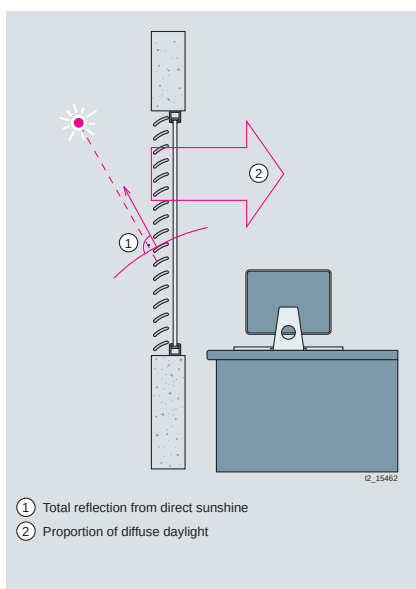
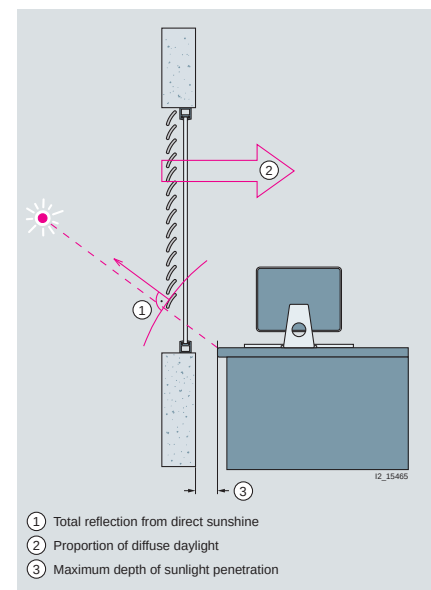
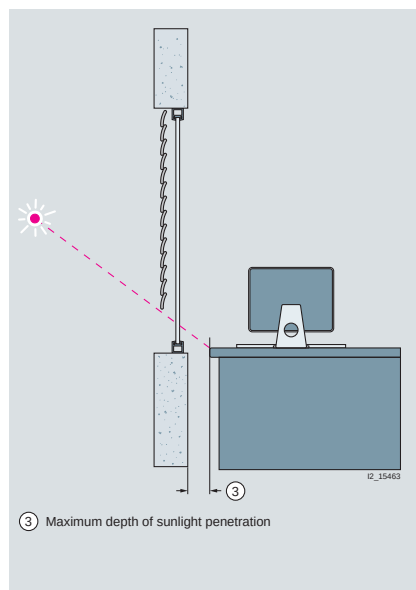
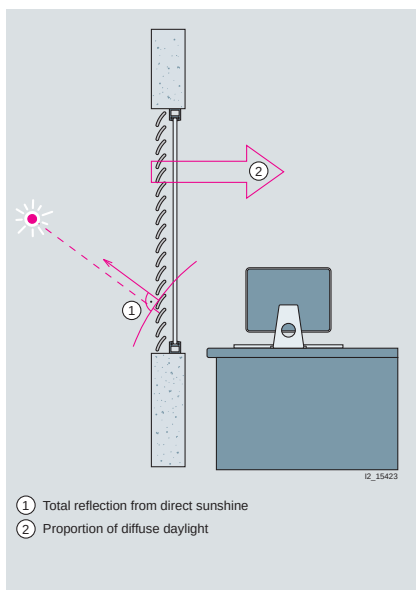
Shadow edge tracking

With activated shadow edge tracking, the sun protection is not fully extended, rather it is extended for a set distance (e.g. 50 cm) to allow a specified amount of sunshine to penetrate the room.

Advantages: It is still possible to look out of the lower part of the window, any plants on the window sill still benefit from the sunshine, while occupants of the room are protected from its glare.

Sunlight tracking control and shadow edge tracking combined

It goes without saying that the two principles can be combined, thus offering optimum sun protection.



Devices for Special Applications

Sun Protection, Anti-Glare Protection, Utilization of Daylight

Anti-glare/sun protection actuators

Technical specifications

Type																
	N 522/03	N 523/02	N 523/03	N 523/04	N 523/11	N 524	N 521	GE 521/02	UP 520	UP 520/11	UP 520/31					
Enclosure data																
Design	N	N	N	N	N	N	N	GE	UP	UP	UP					
Modular installation devices for mounting on TH35 EN 60715 mounting rail	✓	✓	✓	✓	✓	✓	✓	--	--	--	--					
For installation in flush-mounting switch and socket boxes with Ø = 60 mm and depth = 60 mm	--	--	--	--	--	--	--	--	✓	✓	✓					
Modular installation device in oblong design, for installation in luminaires for fluorescent lamps	--	--	--	--	--	--	--	✓	--	--	--					
Integrated peripheral external interface (PEI) for plugging in a single to quadruple bus pushbutton	--	--	--	--	--	--	--	--	✓	--	--					
Dimensions																
• Height	mm	6 MW	4 MW	4 MW	4 MW	8 MW	6 MW	3 MW	42	71	51					
• Width (1 MW = 18 mm)/Ø	mm								274.5	71	44					
• Depth	mm								28	40	40					
Mounting type																
Screw fixing	--	--	--	--	--	--	--	--	✓	--	--					
Claw fixing	--	--	--	--	--	--	--	--	✓	--	--					
Display/control elements																
LED for status indication per output	✓	✓	✓	✓	✓	✓	--	--	--	--	--					
Direct operation (local operation)	✓	✓	✓	✓	✓	✓	--	--	--	--	--					
Power supply																
Electronics powered over bus voltage	--	--	--	--	--	--	✓	✓	✓	✓	✓					
With electronics powered over an integrated power supply unit. Supply voltage 230 V AC	✓	✓	✓	✓	✓	✓	--	--	--	--	--					
Bus connection																
Integrated bus coupling units	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Bus connection via bus terminal	✓	✓	✓	✓	✓	✓	--	✓	✓	✓	✓					
Bus connection over contact system to data rail	✓	✓	✓	✓	✓	--	✓	--	--	--	--					
Outputs																
Load output																
Number of channels (one UP and one DOWN each)	4	4 ¹⁾	4 ¹⁾	4 ¹⁾	8 ²⁾	4	2	1	1	1	1					
Integrated isolating relay function for connection of 2 drives per channel	--	--	--	--	--	--	✓	✓	--	--	--					
Electrically interlocked relays (for reversing direction of rotation)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Contact rated voltage																
• 230 V AC/50 Hz	✓	✓	✓	✓	✓	--	✓	✓	✓	✓	✓					
• 24 V DC	--	--	--	--	--	✓	--	--	--	--	--					
Contact rated current	A	8	6	6	6	1	6	6	6	6	6					
Inputs																
Max. cable length, unshielded, untwisted	m	--	--	--	--	--	--	--	--	--	--					
For signal inputs (floating contact)	--	--	--	--	--	--	--	--	--	--	--					
Determination of switching state over the voltage generated in the device	--	--	--	--	--	--	--	--	--	--	✓					

1) 2 floating.

2) 6 floating.

For selection and ordering data, see page 6/6.

Devices for Special Applications

Sun Protection, Anti-Glare Protection, Utilization of Daylight

Anti-glare/sun protection actuators

Type											
Application program	981101 N 522/03	980101 N 523/02	980181 N 523/03	981201 N 523/04	980601 N 523/11	980201 N 524	520206 N 521	510205 GE 521/02	1) UP 520	902002 UP 520/11	207301 UP 520/31
Output functions											
Max. number of group addresses	114	100	100	110	200	40	11	12	38	38	26
Max. number of assignments	156	100	100	125	200	65	12	12	38	38	27
Configurable behavior in the event of a bus power failure	--	--	--	--	✓	✓	✓	✓	✓	✓	✓
Configurable behavior in the event of a bus power recovery	✓	--	--	--	--	--	--	--	--	--	✓
Configurable behavior in the event of a system voltage recovery	✓	--	--	--	✓	✓	--	--	--	--	--
Operating mode											
Automatic mode	✓	--	--	✓	✓	✓	--	--	--	--	--
Manual mode	✓	--	--	✓	✓	✓	--	--	--	--	--
Standard mode	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Status											
Send status per channel	✓	✓	✓	✓	✓	✓	--	--	--	--	✓
Indication of direct operation with status object	✓	--	--	✓	✓	--	--	--	--	--	--
Status position of sun protection, 8 bit	✓	✓	✓	✓	✓	✓	--	--	--	--	--
Status position of slats, 8 bit	✓	✓	--	✓	✓	✓	--	--	--	--	--
Scene control											
Integrated 1-bit scene control	✓	✓	✓	--	✓	--	--	--	--	--	--
Integrated 8-bit scene control	✓	--	--	--	✓	--	--	--	--	--	--
Scenes to be integrated per channel	8	2	2	--	8	--	--	--	--	--	--
Shutter/blind control											
Travel lock (e.g. for cleaning the outer shutter/blinds)	✓	✓	✓	✓	✓	--	--	--	--	--	✓
Separate raising/lowering protection	--	✓	✓	--	--	--	--	--	--	--	--
Alarm • Move to safety position • Locking in this position for as long as alarm is active	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Individual configuration of actuator channels	✓	✓	✓	✓	✓	✓	--	✓	✓	✓	✓
Shared configuration of actuator channels	✓	✓	✓	✓	✓	--	✓	✓	--	--	--
Adaptation of objects and functions to drive type	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--
Suitable for integration in a sunlight tracking control system	✓	--	--	✓	✓	✓	--	--	--	--	--
End position detection	✓	--	--	--	--	--	--	--	--	--	--
Adaptation of objects and functions to electronic limit switch	✓	--	--	--	--	--	--	--	--	--	--
Sun protection control (UP/DOWN)											
Over position data (8-bit value)	✓	--	--	✓	✓	✓	--	--	--	--	--
Travel to end position, stopping, stepwise adjustment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Slat control (OPEN/CLOSE)											
Over position data (8-bit value)	✓	--	--	✓	✓	✓	--	--	--	--	--
Travel to end position, stopping, stepwise adjustment	✓	✓	--	✓	✓	✓	✓	✓	✓	✓	✓

1) See table "Application programs and pushbuttons for use with UP 520".

For selection and ordering data, see page 6/6.

Application programs and pushbuttons for use with UP 520

For design	i-system				DELTA profil/style			DELTA ambiente
Application program	902902	902A02	902C02	902D02	902402	902502	902602	902802
Can be used with pushbuttons	UP 221	UP 222	UP 221E	UP 222E	UP 241, UP 242 UP 285	UP 243, UP 244 UP 286	UP 245, UP 246 UP 287	UP 284
Number of pushbutton pairs	1	2	1	2	1	2	4	4

Devices for Special Applications

Sun Protection, Anti-Glare Protection, Utilization of Daylight

Anti-glare/sun protection actuators

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
	N 522/03 N 522/03 shutter/blind actuators 4 x 230 V AC, 8 A, with end position detection, for sunlight tracking control	▶	5WG1 522-1AB03		1	1	030	0.386
	N 523/02 N 523/02 shutter/blind actuators 4 x 230 V AC, 6 A	▶	5WG1 523-1AB02		1	1	030	0.260
	N 523/03 N 523/03 roller shutter actuators 4 x 230 V AC, 6 A	▶	5WG1 523-1AB03		1	1	030	0.260
	N 523/04 N 523/04 shutter/blind actuators 4 x 230 V AC, 6 A, for sunlight tracking control	▶	5WG1 523-1AB04		1	1	030	0.260
	N 523/11 N 523/11 shutter/blind actuators 8 x 230 V AC, 6 A, for sunlight tracking control		5WG1 523-1AB11		On req.			
	N 524 N 524 shutter/blind actuators 4 x 6 ... 24 V DC, 1 A	A	5WG1 524-1AB01		1	1	030	0.422
	N 521 N 521 shutter/blind actuators 4 x 230 V AC, 6 A (2 x parallel)	▶	5WG1 521-1AB01		1	1	030	0.150

Devices for Special Applications

Sun Protection, Anti-Glare Protection, Utilization of Daylight

Anti-glare/sun protection actuators

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
 5WG1 521-4AB02	GE 521/02	GE 521/02 shutter/blind actuators	▶ 5WG1 521-4AB02		1	1	030	0.140
	2 x 230 V AC, 6 A (parallel)							
	UP 520	UP 520 shutter/blind actuators	▶ 5WG1 520-2AB01		1	1	030	0.080
	1 x 230 V AC, 6 A, with PEI							
 5WG1 520-2AB01	UP 520/11	UP 520/11 shutter/blind actuators	▶ 5WG1 520-2AB11		1	1	030	0.055
	1 x 230 V AC, 6 A, without PEI							
 5WG1 520-2AB11	UP 520/31	UP 520/31 shutter/blind actuators	▶ 5WG1 520-2AB31					
	1 x 230 V AC, 6 A, 2 x binary inputs					1		0.100
 5WG1 520-2AB31								

Devices for Special Applications

Sun Protection, Anti-Glare Protection, Utilization of Daylight

Central weather/sun protection systems

Technical specifications

Type	 AP 257/21	 AP 257/31	 AP 257/01	 AP 257/11
	Integrated sensors • Heated wind sensors with no mechanical components (0 ... 70 m/s) • Brightness sensors (0 ... 99,000 lux) • Dusk sensors (0 ... 1000 lux) • Outdoor temperature sensors (-40 ... +80 °C) • Heated precipitation monitors		Connection of up to 8 external sensors • 1 wind sensor (wind rotor monitoring) • 7 analog sensors	Connection of up to 4 external sensors • 1 wind sensor (wind rotor monitoring) • 3 analog sensors
Receivers for DCF77 signal	✓	✓	--	--
Transmission of all measured values over bus	✓	✓	✓	✓
Functions				
Monitoring of all measured values up to 3 limit values	✓	✓	--	--
Sensor monitoring	✓	✓	--	--
Sunlight tracking control	✓	--	--	--
Shadow edge tracking	✓	--	--	--
Integrated shutter/blind control modules	✓	✓	--	--
• Controllable facades	8	4	--	--
AND operations	4	4	--	--
OR operations	4	4	--	--
8 OR operations for alarm/fault indications	✓	✓	--	--
Locking function for window cleaning tasks	✓	✓	✓	✓
Safety/alarm objects	✓	✓	✓	✓
Light/time function	--	--	✓	✓
Enclosure data				
Design	AP	AP	AP	AP
Degree of protection	IP44	IP44	IP54	IP54
Dimensions				
• Height	mm 69	69	160	160
• Width	mm 67	67	250	250
• Depth	mm 118	118	55	55
Display/control elements				
LED for the display of DCF77 reception	✓	✓	--	--
Power supply				
Electronics powered over an external power supply unit	24 V DC ¹⁾	24 V DC ¹⁾	--	--
With electronics powered over an integrated power supply unit. Supply voltage 230 V AC	--	--	✓	✓
Bus connection				
Integrated bus coupling units	✓	✓	✓	✓
Bus connection via bus terminal	✓	✓	✓	✓

¹⁾ External 4AC2 402 power supply unit.

For selection and ordering data, see page 6/9.

Type	Description
	Accessories for AP 257/21, AP 257/31 weather systems Electronic power supply units • For powering the AP 257/21 and AP 257/31 weather systems with 24 V DC over the white/yellow core pair of the bus cable • Max. cable length between power supply unit and weather system: 100 m • Rated operational voltage 85 ... 265 V AC (50/60 Hz), 85 ... 300 V DC • Rated secondary voltage 24 V DC, +5 % • Residual ripple < 100 mV • Rated secondary current 0.35 A • Electronic overload protection • Permissible ambient operating temperature: -20 ... +60 °C • Degree of protection IP20 • For mounting on EN 60715-TH35-7.5 mounting rail • Width: 2 MW (1 MW = 18 mm)

Devices for Special Applications

Sun Protection, Anti-Glare Protection, Utilization of Daylight

Central weather/sun protection systems

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
	AP 257/21	AP 257/21 weather systems¹⁾	 B	5WG1 257-3AB21	1	1	030	0.145
	AP 257/31	WS1 AP 257/31 weather stations¹⁾	 B	5WG1 257-3AB31	1	1	030	0.145
Accessories								
	Electronic power supply units		B	4AC2 402	1	1	027	0.080
	AP 257	AP 257 weather systems (to be discontinued) For 8 sensors ²⁾	B	5WG1 257-3AB01	1	1	030	1.338
	AP 257/11	AP 257/11 weather systems (to be discontinued) For 4 sensors ²⁾	B	5WG1 257-3AB11	1	1	030	1.185

5WG1 257-3AB21
5WG1 257-3AB31

4AC2 402

5WG1 257-3AB01

5WG1 257-3AB11

¹⁾ 4AC2 402 electronic power supply unit must be ordered separately.

²⁾ For sensors for connection to weather systems see chapter "Physical sensors".

Devices for Special Applications

Notes

6

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

7



7/2	Introduction
7/3	Sensors for HCVA
7/5	Display/control units for HCVA
7/7	Room temperature controllers
7/9	Pushbuttons with room temperature controllers
7/10	Actuators for HCVA
7/13	Electromotive valve actuators for HCVA
7/15	Electrothermal valve actuators for HCVA

7

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Introduction

Overview

Devices		Application	Page
	Sensors for HCVA	The sensors detect the temperature and deliver the basic values for optimum control.	7/3
	Display/control units for HCVA	Display and operation of room temperature control implemented over a REG 540 fan coil unit controller. The complete i-system and DELTA profil product ranges are available.	7/5
	Room temperature controllers	Display, operation, control and temperature sensor in a single flush-mounting device. This offers optimum control of heating, cooling, ventilation and air-conditioning.	7/7
	Pushbuttons with room temperature controllers	Display, operation, control and temperature sensor and additional, freely assignable operator buttons in a single flush-mounting device.	7/9
	Actuators for HCVA	These control the drives for the heating, cooling, ventilation and air-conditioning.	7/10
	Valve actuators for HCVA	For the opening and closing of small valves.	7/13

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Sensors for HCVA

Technical specifications

Type	Description
 N 258/02	N 258/02 temperature sensors For four Pt1000 sensors - For the measurement and transmission of 4 temperatures in the range -40 ... +150 °C - For connection of four Pt1000 temperature sensors, each over an up to 50 m long 2-wire cable - Configurable smoothing of a measured value through mean value generation - Monitoring of a lower and upper limit value for each measured value, with configurable hysteresis for limit value signals - Electronics powered over an integrated power supply unit for 230 V AC - Green LED for displaying ready-to-run status - Integrated bus coupling units - Bus connection over bus terminal and contact system to data rail - Modular installation devices for mounting on TH35 EN 60715 mounting rail - Width: 4 MW (1 MW = 18 mm)
 N 670	Universal N 670 I/O modules 2 x universal I/O, 2 inputs Pt1000, 2 relay outputs 230 V AC, 10 A 2 universal inputs/outputs, each adjustable as - Analog input 0 V ... 10 V DC - Analog output 0 V ... 10 V DC - Binary input for 10 V DC - Binary output for 10 V DC - Analog input with limit value monitoring and signaling, with adjustable limit values and hysteresis - Analog output with adjustable lower and upper limit of the output voltage with adjustable voltage value in the event of bus voltage failure and recovery - Binary input with pulse edge evaluation - Binary output with adjustable switching position in the event of bus voltage failure and recovery 2 inputs for the connection of temperature sensors with Pt1000 measured element for temperature measurement in the range -25 °C ... +45 °C, with limit value monitoring and signaling, with adjustable limit values and hysteresis 2 binary outputs, relay contacts rated for 230 V AC, 10 A at p.f. = 1, with - Configurable actuated position (NO contact/NC contact) - Positively driven operation - Configurable switching position in the event of bus voltage failure and recovery - Electronics powered over an external power supply unit for 24 V AC/DC - Integrated bus coupling units - Bus connection over bus terminal and contact system to data rail - Modular installation devices for mounting on TH35 EN 60715 mounting rail - Width: 4 MW (1 MW = 18 mm)
 AP 254/02	AP 254/02 dual sensors Brightness measurement, temperature measurement, sun protection control, lighting control - For the detection and transmission of brightness and temperature, temperature measuring range -25 °C ... +55 °C, brightness measuring range 1 lux ... 100 kLux, horizontal sensing angle -60° ... +60°, vertical -35° ... +66.5° - For the control of switch, dimming and shutter/blind actuators, depending on the ambient luminosity and/or ambient temperature - One sun protection channel for the automatic control of sun protection equipment, with - Starting and stopping of automation over an object or a dusk threshold - Up to three brightness thresholds for determining the height and position of the shutters/blinds or roller shutters - Optional teach-in of dusk thresholds and brightness thresholds over a teach-in facility - Locking object for the temporary deactivation of the sun protection channel function - Up to four universal channels for the control of switch, dimming and shutter/blind actuators, depending on ambient luminosity and/or temperature. Optionally available with: - Threshold switches for brightness - Threshold switches for temperature - Threshold switches with logical combination of brightness and temperature - Optional teach-in of brightness threshold for each universal channel over an associated teach-in facility - Deactivation option for each universal channel over an associated locking object (1 bit) - Optional second object for transmission of a second telegram on fulfillment of threshold conditions - Electronics powered over bus voltage - Integrated bus coupling units - Bus connection via bus terminal - Surface mounting - Degree of protection, IP54

For selection and ordering data, see page 7/4.

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Sensors for HCVA

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
 5WG1 258-1AB02	N 258/02	N 258/02 temperature sensors For four Pt1000 sensors	B	5WG1 258-1AB02	1	1	030	0.242
	N 670	Universal N 670 I/O modules¹⁾ 2 x universal I/O, 2 inputs for Pt1000, 2 outputs 230 V AC, 10 A	►	5WG1 670-1AB03	1	1	030	0.220
	AP 254/02	AP 254/02 dual sensors Brightness measurement, temperature measurement, sun protection control, lighting control	►	5WG1 254-3EY02	1	1	030	0.153

5WG1 254-3EY02

¹⁾ The external power supply unit with 24 V AC/DC must be ordered separately (e.g. 4AC2 402).

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Display/control units for HCVA

Technical specifications

		i-system	DELTA profil	DELTA style
Dimensions				
• Height	mm	55	65	65
• Width	mm	55	65	65
• Depth	mm	16	16	16

Type	Description
	Fan coil unit controllers for office and hotel - For the display and operation of the room temperature control using a REG 540 fan coil unit controller 5 yellow LEDs for the display of manually set fan speed step or automatic speed input 10-pole BTI plug (BTI - Bus Transceiver Interface) for mounting on a Plus UP 117/11 bus transceiver module
 UP 237E UP 252E UP 254E	Fan coil unit controllers for offices - Pushbutton for switching the room operating mode between comfort and energy-saving mode and for setting the required fan speed step or the automatic input of the speed step by the fan coil unit controller - Rotary button for shifting the room temperature setpoint within a user-defined range 3 green LEDs for the display of the current room operating mode (comfort, energy-saving or protection mode)
 UP 237F UP 252F UP 254F	Fan coil unit controllers for hotels - Pushbutton for setting the required fan speed step or for automatic entry of the speed step by the fan coil unit controller - Rotary button for setting the room temperature setpoint within the range of 16 ... 26 °C 2 green LEDs for displaying whether the room is being heated or cooled

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
i-system								
	UP 237E UP 237E fan coil unit controllers for offices¹⁾ - Titanium white - Carbon metallic - Aluminum metallic	A	5WG1 237-2EB11		1	1	022	0.050
		B	5WG1 237-2EB21		1	1	022	0.030
		A	5WG1 237-2EB31		1	1	022	0.030
	UP 237F UP 237F fan coil unit controllers for hotels¹⁾ - Titanium white - Carbon metallic - Aluminum metallic	A	5WG1 237-2FB11		1	1	022	0.050
		B	5WG1 237-2FB21		1	1	022	0.030
		A	5WG1 237-2FB31		1	1	022	0.030

5WG1 237-2EB11

5WG1 237-2FB11

¹⁾ The bus transceiver module must be ordered separately, see page 14/3.

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Display/control units for HCVA

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg	
DELTA profil					1	1	022	0.030	
	UP 252E UP 252E fan coil unit controllers for offices¹⁾	B							5WG1 252-2EB01
	• Pearl gray • Titanium white • Anthracite • Silver	▶							5WG1 252-2EB11
		B							5WG1 252-2EB21
		A							5WG1 252-2EB71
5WG1 252-2EB11					1	1	022	0.030	
	UP 252F UP 252F fan coil unit controllers for hotels¹⁾	B							5WG1 252-2FB01
	• Pearl gray • Titanium white • Anthracite • Silver	▶							5WG1 252-2FB11
		B							5WG1 252-2FB21
		A							5WG1 252-2FB71
5WG1 252-2FB11					1	1	022	0.062	
	UP 254E UP 254E fan coil unit controllers for offices¹⁾	A							5WG1 254-2EB11
	• Titanium white/metallic silver • Basalt black/metallic silver • Platinum metallic	B							5WG1 254-2EB21
		NEW B							5WG1 254-2EB41
	5WG1 254-2EB11								
	UP 254F UP 254F fan coil unit controllers for hotels¹⁾	A	5WG1 254-2FB11						
	• Titanium white/metallic silver • Basalt black/metallic silver • Platinum metallic	B	5WG1 254-2FB21						
		NEW B	5WG1 254-2FB41						
	5WG1 254-2FB11								

¹⁾ The bus transceiver module must be ordered separately, [see page 14/3](#).

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Room temperature controllers

Technical specifications

		i-system	DELTA profil	DELTA style	DELTA ambiente	DELTA millennium
Dimensions						
• Height	mm	55	65	68	65	65
• Width	mm	55	65	68	65	65
• Depth	mm	16	16	16	16	16

Type	Description
 UP 237 UP 252 UP 253 UP 254	UP 237, UP 252, UP 253, UP 254 room temperature controllers - Integrated room temperature sensors - Control can be set as a two-point control and/or continuous-action control (P or PI algorithm), for heating only, for cooling only, or for heating and cooling mode - Comfort, standby, night, frost and heat protection operating modes, which can be switched via KNX - Presence pushbutton to locally switch between comfort and standby mode and to extend comfort mode after operating night mode - Adjusting the room temperature setpoint offset for comfort mode can be set via a rotary button on the controller and via the KNX - Basic setpoint of the room temperature for comfort mode which can be set via the KNX - Adjustable dead zone between the heating setpoint and the cooling setpoint for comfort mode - Output of the control variable(s) either as an ON/OFF switch command or as a positioning command in the range of 0 ... 100 % - Two-level heating or cooling 5 LEDs to display the current operating mode and, if necessary, the dew point alarm - Mounting on a UP 110 or UP 114 bus coupling unit
 IKE 250	IKE 250 room temperature controllers - Integrated room temperature sensors - Control can be set as a two-point control and/or continuous-action control (P or PI algorithm), for heating only, for cooling only, or for heating and cooling mode - Operating modes comfort mode, standby mode, night mode and frost or heat protection mode which can be switched via KNX - Two pushbuttons for local switching between comfort and standby mode - Two pushbuttons for adjusting the basic setpoint - Basic setpoint of the room temperature for comfort mode which can be set via the KNX - Adjustable dead zone between the heating setpoint and the cooling setpoint for comfort mode - Output of the control variable(s) either as an ON/OFF switch command or as a positioning command in the range of 0 ... 100 % - Red luminous bar for indicating the current setpoint offsetting and the set operating mode - Integrated bus coupling units 1 ground conductor and 1 ground terminal for the base - Dimensions (H x W x D): 80 x 166 x 41 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
i-system					Unit(s)	Unit(s)		
	UP 237 UP 237 room temperature controllers¹⁾²⁾ • Titanium white • Carbon metallic • Aluminum metallic	►	5WG1 237-2AB11		1	1	022	0.048
		B	5WG1 237-2AB21		1	1	022	0.048
		A	5WG1 237-2AB31		1	1	022	0.048
5WG1 237-2AB11								
DELTA profil								
	UP 252 UP 252 room temperature controllers¹⁾²⁾ • Pearl gray • Titanium white • Anthracite • Silver	B	5WG1 252-2AB03		1	1	022	0.038
		►	5WG1 252-2AB13		1	1	022	0.038
		B	5WG1 252-2AB23		1	1	022	0.038
		A	5WG1 252-2AB73		1	1	022	0.065
5WG1 252-2AB13								

5WG1 237-2AB11

5WG1 252-2AB13

1) The bus coupling unit must be ordered separately.

2) The matching design frame must be ordered separately.

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Room temperature controllers

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg		
DELTA style					Unit(s)	Unit(s)				
	UP 254	UP 254 room temperature controllers ¹⁾²⁾³⁾								
		• Titanium white/metallic silver • Basalt black/metallic silver • Platinum metallic	▶	5WG1 254-2AB13	1	1	022	0.068		
			B	5WG1 254-2AB23	1	1	022	0.068		
			B	5WG1 254-2AB43	1	1	022	0.068		
5WG1 254-2AB13										
DELTA ambiente										
	UP 253	UP 253 room temperature controllers ¹⁾²⁾ (to be discontinued)								
		• Arctic white	B	5WG1 253-2AB03	1	1	022	0.065		
5WG1 253-2AB03										
DELTA millennium										
	IKE 250	IKE 250 room temperature controllers ⁴⁾			D	5WG1 250-8AB01	1	1	030	0.341
5WG1 250-8AB01										

5WG1 254-2AB13

5WG1 253-2AB03

5WG1 250-8AB01

¹⁾ The bus coupling unit must be ordered separately.

²⁾ The matching design frame must be ordered separately.

³⁾ No intermediate frame necessary.

⁴⁾ The text for the labeling field is engraved and must be specified at the time of ordering (see page 1/34 DELTA millennium order form).

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Pushbuttons with room temperature controllers

Technical specifications

Type	Description
 UP 231	UP 231 pushbuttons - Vertical operation - Two wide inner rocker buttons - Function can be user-assigned: switching OVER, switching ON/OFF, switching ON/OFF and dimming, shutter/blind, value transmission, store and call up scenes of up to four 1-bit scenes in conjunction with scene module - Short and long button press for ON/OFF/OVER, BRIGHTER/DARKER for dimming, and UP/DOWN and adjustment of slats for shutter/blind control - Operation/status indication over one LED per rocker button - Integrated room temperature sensors and controllers for heating only, cooling only or combined heating/cooling - Control over an algorithm for adaptive control and/or a two-point algorithm - With monitoring of room temperature over a room temperature sensor integrated in the controller and an external room temperature sensor connected to the KNX, and with adjustable weighting between the measured indoor and outdoor temperature - Two narrow outer rocker buttons for setpoint offsetting in comfort mode and one for switching between comfort and standby mode - Operating modes that can be switched over KNX: comfort mode, standby mode, night mode, frost or heat protection mode, with adjustable offset of the room temperature setpoint for comfort mode - Adjustable dead zone, selectable either symmetric to the setpoint for comfort mode or between the heating and cooling setpoint for comfort mode - Selectable sequence control for heating and cooling mode (required e.g. for the combination of floor and radiator heating) - Output of the control variable(s) either as ON/OFF switch command or as positioning command in the range 0 ... 100 %, with LEDs for the indication of the current operating mode and setpoint offsetting - For plugging onto a UP 114 bus coupling unit - Dimensions (H x W x D): 65 x 65 x 15 mm

7

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
DELTA profil								
	UP 231	UP 231 pushbuttons ¹⁾²⁾ Double, adaptive room temperature controllers - Pearl gray - Titanium white - Anthracite - Silver	B	5WG1 231-2AB03	1	1	022	0.036
			B	5WG1 231-2AB13	1	1	022	0.036
			B	5WG1 231-2AB23	1	1	022	0.036
			B	5WG1 231-2AB73	1	1	022	0.036
5WG1 231-2AB13								
DELTA style								
	UP 231E	UP 231E pushbuttons ¹⁾²⁾³⁾ Double, adaptive room temperature controllers - Titanium white - Basalt black	B	5WG1 231-2EB13	1	1	022	0.036
			B	5WG1 231-2EB23	1	1	022	0.036

5WG1 231-2AB13

5WG1 231-2EB13

¹⁾ The bus coupling unit must be ordered separately.

²⁾ The matching design frame must be ordered separately.

³⁾ The matching intermediate frame must be ordered separately.

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Actuators for HCVA

Technical specifications

					
Type	N 605	N 605/11	N 670	REG 540	REG 540/11
Application program	906101	906202	900501	49550	49551
Enclosure data					
Design	N	N	N	REG	REG
Modular installation devices for mounting on TH35 EN 60715 mounting rail	✓	✓	✓	✓	✓
Dimensions					
• Length	mm 90	90	90	90	90
• Width (1 MW = 18 mm)	mm 6 MW	6 MW	4 MW	6 MW	4 MW
• Height	mm 55	55	55	55	55
Display/control elements					
LED for operation/status indication	✓	✓	--	✓	✓
Can be operated with	1)	1)	1)	UP 237E, UP 252E UP 237F, UP 252F	UP 237E, UP 252E UP 237F, UP 252F
Direct operation (local operation)	✓ (manual)	✓ (manual)	--	✓ (test mode)	✓ (test mode)
Power supply					
Electronics powered over an external power supply unit for 24 V AC/DC	--	--	✓	--	✓ (AC only)
With electronics powered over an integrated power supply unit. Supply voltage 230 V AC	✓	✓	--	✓	--
Bus connection					
Integrated bus coupling units	✓	✓	✓	✓	✓
Bus connection over contact system to data rail	--	--	✓	--	--
Bus connection via bus terminal	✓	✓	✓	--	--
Bus connection over screw terminals	--	--	--	✓	✓
Outputs					
Load output					
Floating relay contact	--	--	2	3	3
• Contact rated voltage, AC	V --	--	230	230	230
• Contact rated current (p.f. = 1)	A --	--	10	6	6
Silent semiconductor switch	6	6	--	2	2
• Rated voltage, AC	V 230	230	--	24	24
• Max. permanent loading (p.f. = 1)	W 12	6	--	5	15
Protection					
Electronic protection of outputs against overload and short circuit	✓	✓	--	--	--
Universal inputs/outputs					
Adjustable inputs/outputs as	--	--	2	--	--
• Analog input (0 ... 10 V DC) with limit value monitoring and indication					
• Analog output (0 ... 10 V DC) with adjustable lower and upper limits					
• Binary input for 10 V DC with pulse edge evaluation					
• Binary output (10 V DC)					
Inputs					
Pushbutton inputs					
For signal input (floating contacts)	6	6	--	2	1
Determination of switching state over the voltage generated in the device	✓	✓	--	✓	✓
Sensor inputs					
PT1000 temperature sensor input	--	--	2	--	--
Temperature sensor input	--	--	--	1 ²⁾	1 ²⁾
Potentiometer input (setpoint adjustment)	--	--	--	1	--
Max. cable length, unshielded, untwisted	m 50	50	³⁾	30	30

1) *instabus* room temperature controllers.

2) M 540 temperature sensors.

3) On request.

For selection and ordering data, see page 7/12.

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Actuators for HCVA

					
Type	N 605	N 605/11	N 670	REG 540	REG 540/11
Application program	906101	906202	900501	49550	49551
Output functions					
Switching (ON/OFF per channel)	✓	✓	✓	✓	✓
Value setting per channel, 8-bit	✓	--	✓	✓	✓
Positively driven operation	✓	--	✓	--	--
Configurable transmission of output status	✓	✓	--	--	--
Send status	✓	✓	--	--	--
Input functions					
Configurable debounce time	--	--	✓	--	--
Configurable pulse edge evaluation	--	--	✓	--	--
Configurable transmission of input status objects	✓	✓	✓	--	--
General functions					
Max. number of group addresses	35	40	40	1)	1)
Max. number of assignments	55	65	40	1)	1)
Integrated controllers with PI algorithms	--	--	--	✓	✓
Comfort mode	--	--	--	✓	✓
Standby mode	--	--	--	✓	✓
Night mode	--	--	--	✓	✓
Frost protection mode	--	--	--	✓	✓
Heat protection mode	--	--	--	✓	✓
Energy-saving function	--	✓	--	--	--
Calcification protection	✓	--	--	--	--
Configurable behavior in the event of a bus power failure	✓	✓	✓	--	--
Configurable behavior in the event of a bus power recovery	✓	✓	✓	--	--

1) On request.

For selection and ordering data, see page 7/12.

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Actuators for HCVA

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
	N 605	N 605 thermal drive actuators 6 inputs / 6 outputs	▶	5WG1 605-1AB01		1	1	030	0.434
5WG1 605-1AB01									
	N 605/11	N 605/11 thermal drive actuators 6 inputs, 2 x 3 outputs For the control of 2 heating/cooling mats	▶	5WG1 605-1AB11		1	1	030	0.434
5WG1 605-1AB11									
	N 670	Universal N 670 I/O modules¹⁾ 2 x universal I/O, 2 inputs for Pt1000, 2 outputs 230 V, 10 A	▶	5WG1 670-1AB03		1	1	030	0.220
5WG1 670-1AB03									
	REG 540	REG 540 fan coil unit controllers	B	5WG1 540-5AS01		1	1	030	0.530
5WG1 540-5AS01									
	REG 540/11	REG 540/11 fan coil unit controllers	A	5WG1 540-5AS11		1	1	030	0.225
5WG1 540-5AS11									
	M 540	Accessories M 540 temperature sensors For REG 540, REG 540/11 fan coil controllers Including a 2-m long connecting lead with terminal plug	A	5WG1 540-8AS01		1	1	030	0.081
5WG1 540-8AS01									

¹⁾ The external power supply unit with 24 V AC/DC must be ordered separately (e.g. 4AC2 402).

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Electromotive valve actuators for HCVA

Technical specifications

					
Type	AP 560H		AP 560H02		AP 562
Enclosure data					
Dimensions					
• Height	mm	60	60	82	
• Width	mm	46	46	50	
• Depth	mm	47	47	65	
Power supply					
Bus-powered electronics and drive	✓		✓		✓
Bus connection					
Integrated bus coupling units	✓		✓		✓
Bus connection over permanently fixed connecting cable	✓		✓		✓
Inputs					
Pushbutton inputs					
For signal input (floating contacts)	--		--		2
Output					
Electrothermal actuators (silent) 230 V/50 Hz	--		--		--
Valve position in de-energized state	--		--		--
Electromotive actuators	✓		✓		✓
Stroke max.	mm	4.5	4.5		7.5
Automatic adjustment of travel to the valve used (valve stroke detection)	✓		✓		✓
Length of connecting lead	m	1	5		0.8
Mounting on company valves					
• Direct	- Heimeier			--	
• With spacer ring	--			- Danfoss RA - Heimeier - MNG - Schlösser (3/93 ff.) - Honeywell - Braukmann - Dumser (distribution boards) - Reich (distribution boards) - Landis + Gyr - Oventrop - Herb - Onda	
• Adapter set	For connection to other valve makes, adapters can be obtained from Heimeier			--	

For selection and ordering data, see [page 7/14](#).

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Electromotive valve actuators for HCVA

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
						Unit(s)	Unit(s)		
 5WG1 560-7AH01	AP 560H	AP 560H valve actuators Electromotive ¹⁾	▶	5WG1 560-7AH01		1	1	030	0.215
	AP 560H2	AP 560H2 valve actuators Electromotive ¹⁾	▶	5WG1 560-7AH02		1	1	030	0.410
	AP 590H	Programming magnets For AP 560H1 and AP 560H2 For non-contact activation of the programming mode, suitable for Heimeier AP 560H valve actuators.	C	5WG1 590-8AH01		1	1	030	0.011
		Accessories							
 5WG1 562-7EY01	AP 562	AP 562 valve actuators Electromotive, with LED valve position indication	A	5WG1 562-7EY01		1	1	030	0.273

5WG1 562-7EY01

¹⁾ The programming magnet must be ordered separately.

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Electrothermal valve actuators for HCVA

Technical specifications

					
Type		AP 561/01	AP 561/02	AP 561/03	AP 561/04
Enclosure data					
Dimensions					
• Height	mm	58	58	58	58
• Width/Ø	mm	44.5	44.5	44.5	44.5
Output					
Electrothermal actuators (silent) 230 V/50 Hz	V	230	230	24	24
Valve position in de-energized state		Closed (NC)	Open (NO)	Closed (NC)	Open (NO)
Valve position indication		✓	--	✓	--
Stroke max.	mm	3.5	2.6	3.5	2.6
Open/close time	min	Approx. 3	Approx. 3	Approx. 3	Approx. 3
Length of connecting lead	m	1	1	1	1
Mounting on company valves		Heimeier	Heimeier	Heimeier	Heimeier

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
 5WG1 561-7AH01	AP 561/01	AP 561 valve actuators 230 V AC, NC ¹⁾	B	5WG1 561-7AH01		1			0.226
	AP 561/02	AP 561/02 valve actuators 230 V AC, NO ¹⁾	B	5WG1 561-7AH02		1			0.226
	AP 561/03	AP 561/03 valve actuators 24 V, NC ¹⁾	B	5WG1 561-7AH03		1			0.226
	AP 561/04	AP 561/04 valve actuators 24 V, NO ¹⁾	B	5WG1 561-7AH04		1			0.226
		Herz adapter for AP 561	B	5WG1 561-8AH01		1			0.144
		Vaillant adapter for AP 561	B	5WG1 561-8AH02		1			0.144
		Danfoss adapter RA2000 for AP 561	B	5WG1 561-8AH03		1			0.144
		TA adapter for AP 561	B	5WG1 561-8AH04		1			0.144
		Danfoss adapter clamps for AP 561	B	5WG1 561-8AH05		1			0.144
		MNG adapter sleeves for AP 561	B	5WG1 561-8AH06		1			0.144

¹⁾ NC: deenergized closed; NO: deenergized open.

Devices for Special Applications

Heating, Cooling, Ventilation, Air-Conditioning

Notes

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8/2

Load management

8

Devices for Special Applications

Load Management

Load Management

Technical specifications



Type	Description
N 360	N 360 peak load limiters¹⁾ • For peak load limitation in plants with tariff-based power measurement • Value of an energy pulse configurable in watthours • Configurable peak load limit of 30... 1000 kW, with configurable warning limit of 25 ... 1000 kW • Configurable measuring period of 15, 30 or 60 minutes for the calculation of the power mean value • Configurable cycle time of 15, 30, 60, 120 or 240 seconds for the load extrapolation interval • Up to 120 loads assignable to peak load limitation • State monitoring and switching of loads over the KNX • With parameters assignable per load • Power consumption of the load • Turn-off priority (1 ... 10) • Release/locking of load • Minimum make time • Minimum break time • Maximum break time • Number of permissible switching cycles in 24 h • Transmission of extrapolation data via KNX after each extrapolation • Transmission of statistics data via KNX at the end of each measuring period • 3 LEDs for display of availability (operational voltage), of an impending exceeding of the maximum value and of a missing synchronization pulse • 5 LEDs for display of the current time interval within the measuring interval • 8 LEDs for status indication of the first 8 loads • Inputs for connection of energy pulses generated by utility company counters and for connection of synchronous pulses and high/low-tariff contacts • Electronics powered over an integrated power supply unit for 230 V AC • Integrated bus coupling units • Bus connection over bus terminal and contact system to data rail • Modular installation devices for mounting on TH35 EN 60715 mounting rail • Width 4 MW (1 MW = 18 mm)

¹⁾ Like the documentation, the statistics software for the peak load limiter can be downloaded free of charge from the Internet at: <http://www.siemens.com/gamma-td>.

Selection and ordering data



5WG1 360-1AB01

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
N 360	N 360 peak load limiters	Ⓛ B	5WG1 360-1AB01		1	1	030	0.267



9/2	Introduction
9/3	Intrusion
9/4	Leakage
9/5	Fire

Devices for Special Applications

Safety

Introduction

Overview

Devices		Application	Page
	Intrusion	Presence-simulation modules and detector group terminals reduce the risk of intrusion.	9/3
	Leakage	The water sensors indicate unexpected water. In DELTA profil or DELTA style design.	9/4
	Fire	The fire combination alarm with integrated bus coupling unit for the early detection of fires.	9/5

Technical specifications

Type	Description
 N 345	N 345 presence-simulation modules¹⁾ - For recording switching, dimming and shutter/blind activities of up to 32 channels and up to a total of 5000 actions over a maximum period of 4 weeks (corresponds to 5 to 6 actions per channel and day) - Continuous recording or one-off recording of sample weeks - Detection of public holidays during recording, which is taken into account during simulation, with replay of the recorded telegrams in the same order, but with time-definable random deviation from the recording - Return to the start of the simulation after 1 to 4 weeks - Module-internal clock, which requires regular synchronization by a master clock - Electronics powered over bus voltage - Integrated bus coupling units - Bus connection over contact system to data rail - Modular installation devices for mounting on TH35 EN 60715 mounting rail - Width 1 MW (1 MW = 18 mm)
 N 266	N 266 detector group terminals²⁾ - For the monitored connection of passive detectors (e.g. magnetic contacts) and for the connection of floating contacts in applications with increased safety demands 4 detector group inputs, each with one LED for status display - Two 12 V outputs "walk test" and "setting/unsetting" for the control of passive infrared and motion detectors - Setting/unsetting of the detector group terminal over a communication object - With failure message in case of short circuit or interruption of a signal line - Electronics powered over an external power supply unit for 12 V DC, max. 50 mA - Monitoring of the external power supply - Integrated bus coupling units - Bus connection via bus terminal - Modular installation devices for mounting on TH35 EN 60715 mounting rail - Width 4 MW (1 MW = 18 mm)

¹⁾ The following devices can be used as a master clock or time source for synchronizing the module-internal real-time clock: a time switch (e.g. 5WG1 372-5EY01) or an N 350E IP controller.

²⁾ The following (e.g.) is suitable as external power supply unit: LOGO!Power 6EP1 321-1SH01.

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
	N 345 N 345 presence-simulation modules Storage for 5000 actions		5WG1 345-1AB01		1	1	030	0.100
	N 266 N 266 detector group terminals With 4 monitored inputs for passive detectors	B	5WG1 266-1AB01		1	1	030	0.180

5WG1 345-1AB01

5WG1 266-1AB01

Devices for Special Applications

Safety

Leakage

Technical specifications

Type	Description
 UP 272	UP 272 water sensors - For detecting water in rooms with risk of leakages - With water sensor for mounting near the ground with a 2 m long connecting lead (extendable to max. 20 m) with jack plug and of a flush-mounting device - For plugging onto a UP 110 or UP 114 bus coupling unit - Indication of water / no water - Alarm indication with adjustable cyclic transmission time - Indication of defective device / cable - Alarm acknowledgement for resetting the alarm indication - Electronics powered over bus voltage - Dimensions (H x W x D): 65 x 65 x 42 mm.

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
DELTA profil								
	UP 272	UP 272 water sensors ¹⁾²⁾						
		• Pearl gray	B	5WG1 272-2AB01	1	1	022	0.090
		• Titanium white	▶	5WG1 272-2AB11	1	1	022	0.090
		• Anthracite	B	5WG1 272-2AB21	1	1	022	0.090
		• Silver	C	5WG1 272-2AB71	1	1	022	0.090
5WG1 272-2AB11								
DELTA style								
	UP 272	UP 272 water sensors ¹⁾²⁾						
		• Titanium white	▶	5WG1 272-2AB11	1	1	022	0.090
5WG1 272-2AB11								

5WG1 272-2AB11

5WG1 272-2AB11

1) The bus coupling unit must be ordered separately.

2) The matching design frame must be ordered separately.

Technical specifications

Type	Description
 AP 256	AP 256 fire combination alarms The fire combination alarm with integrated bus coupling unit can be used for the early detection of fires in buildings that are not required to use VDS-approved fire detection systems (VDS - Verband der Sachversicherer - German Association of Insurers). It is of modular design, i.e. it comprises a base with integrated bus coupling unit and a sensor head, which can be removed, e.g. for maintenance or overhaul tasks. Smoke and heat alarm indications and the current temperature value are output over the bus. It also automatically indicates whether the sensor is defective or soiled or whether the sensor has been separated from the base. Dimensions (Ø x H): 166 x 64 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		



5WG1 256-3AB01

AP 256 **AP 256 fire combination alarms**
(to be discontinued)

X

5WG1 256-3AB01

1

1

030

0.240

Devices for Special Applications

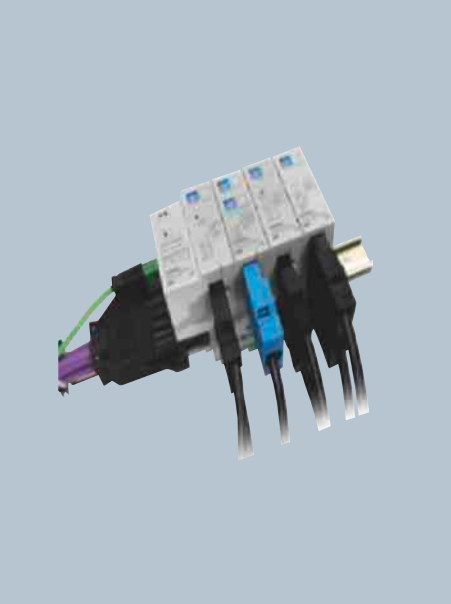
Safety

Notes

Devices for Special Applications

Quick-Assembly Systems

10



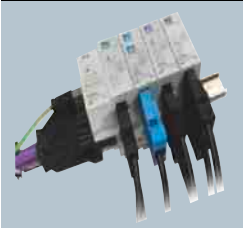
10/2	Introduction
10/3	Modular quick-assembly systems
10/5	SMS controls, flat

Devices for Special Applications

Quick-Assembly Systems

Introduction

Overview

Devices		Application	Page
	Modular quick-assembly systems	Flexible modules control shutter/blinds, lighting groups or other loads.	10/3
	SMS controls, flat	Quick-assembly systems in flat design.	10/5

Note:

The electrical connections to the devices are fitted exclusively with plug-in connectors. The required plug-in connectors and cable assemblies can be obtained directly from Wieland.

Order address:

Wieland Electric GmbH
Vertriebs- und Marketing Center
Abteilung VSI
Benzstraße 9
D-96052 Bamberg

Telephone: +49 (951) 9324-390
Fax: +49 (951) 9324-390

[http://www.wieland-electric.com/
products/pluggable-electrical-installation-system-geis](http://www.wieland-electric.com/products/pluggable-electrical-installation-system-geis)

Devices for Special Applications

Quick-Assembly Systems

Modular quick-assembly systems

Technical specifications

The "Modular quick-assembly system" comprises a basic module (for up to 6 expansion devices) and the respective series-connected expansion modules. The devices are designed for distributed mounting on a TH 35-7.5 mounting rail in false floors or suspended ceilings.

	Basic modules		Expansion modules				
Type	AP 611		AP 611/11 input	AP 611/21 input	AP 611/31 switch actuators	AP 611/51 shutter/blind actuators	AP 611/61 switch/dimming actuators
Enclosure data							
Plug-in connectors	gesis EST 2i5 Green/black		gesis GST 18i4 Pebble gray	gesis GST 18i5 Light blue	gesis GST 18i3 Black	gesis GST 18i4 Black	gesis GST 18i5 Pastel blue
Dimensions							
• Height incl. TH 35-7.5 mounting rail	mm	120	120	120	120	120	120
• Width (connected in series)	mm	80	80	80	80	80	80
• Depth	mm	62	41 (31)	41 (31)	41 (31)	41 (31)	41 (31)
Bus connection							
Integrated bus coupling units	✓		--	--	--	--	--
Bus connection over plug system	✓		--	--	--	--	--
Max. possible expansion modules	6		--	--	--	--	--
Inputs							
Max. cable length, unshielded, untwisted	m	--	100	100	--	--	--
Pushbutton inputs							
For voltage input (with common ground (N) or (-))	--		✓	✓	--	--	--
230 V AC	--		4	--	--	--	--
24 V DC	--		--	4	--	--	--
Outputs							
Control output							
1 ... 10 V DC	--		--	--	--	--	✓
Control current	mA	--	--	--	--	--	50
Load output							
Floating relay contact	--		--	--	2		1
Number of channels (one UP and one DOWN each)	--		--	--	--	1	--
Integrated isolating relay function for connection of 2 drives per channel	--		--	--	--	✓	--
Load types							
Rated contact voltage, AC	V	--	--	--	230	230	230
Rated contact current	A	--	--	--	16	8	16

For selection and ordering data, see page 10/4.

Devices for Special Applications

Quick-Assembly Systems

Modular quick-assembly systems

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
						Unit(s)	Unit(s)		
	AP 611	AP 611 basic modules gesis KNX M2-BAS	B	5WG1 611-3AL01		1	1	030	0.320
5WG1 611-3AL01									
	AP 611/11	AP 611/11 input modules gesis KNX M2, 4 inputs for 230 V AC	B	5WG1 611-3AL11		1	1	030	0.238
5WG1 611-3AL11									
	AP 611/21	AP 611/21 input modules gesis KNX M2, 4 inputs for 24 V DC	B	5WG1 611-3AL21		1	1	030	0.255
5WG1 611-3AL21									
	AP 611/31	AP 611/31 load switches gesis KNX M2-0/2, 2 x 230 V AC, 16 A	B	5WG1 611-3AL31		1	1	030	0.258
5WG1 611-3AL31									
	AP 611/51	AP 611/51 shutter/blind actuators gesis KNX M, 2 x 230 V, 8 A, running parallel	B	5WG1 611-3AL51		1	1	030	0.234
5WG1 611-3AL51									
	AP 611/61	N 611/61 switch/dimming actuators gesis KNX M2, 1 x 230 V AC, 16 A	B	5WG1 611-3AL61		1	1	030	0.276
5WG1 611-3AL61									

Devices for Special Applications

Quick-Assembly Systems

SMS controls, flat

Technical specifications

The "flat quick-assembly systems" are actuators for distributed mounting in false floors or suspended ceilings.

Mains connection is over the plug-in connector "gesis GST 18i5 black".

Bus connection is over the plug-in connector "gesis BST 14i2 green".

Mains and bus connection can also be implemented using the combination connector "gesis EST 2i5 green/black".

For plug types for outputs, see "Technical specifications".

Type		AP 631 shutter/blind actuators	AP 631/02 shutter/blind actuators	AP 631/51 shutter/blind actuators	AP 631/52 shutter/blind actuators	AP 631/11 switch and shutter/blind actuators	AP 631/12 switch and shutter/blind actuators	AP 631/21 switch/dimming actuators	AP 631/22 switch/dimming actuators	AP 631/43 switch actuators	AP 631/44 switch actuators	AP 631/32 switch actuators	AP 631/62 switch actuators, Gateway EnOcean
Enclosure data													
Plug-in connectors for outputs		--	--	--	--	Switch- ing Shutter/ blind	Switch- ing Shutter/ blind	--	--	✓	✓	--	✓
• gesis GST 18i3 black		✓	✓	✓	✓			--	--	--	--	--	--
• gesis GST 18i4 black		✓	✓	✓	✓			--	--	--	--	--	--
• gesis GST 18i5 pastel blue		--	--	--	--	--	--	✓	✓	--	--	--	--
• gesis GST 18i5 black		--	--	--	--	--	--	--	--	--	--	✓	--
Dimensions													
• Height (incl. combination distributor block)	mm	32 (71)	32 (71)	32 (71)	32 (71)	32 (71)	32 (71)	32 (71)	32 (71)	32 (71)	32 (71)	32 (71)	32 (71)
• Width	mm	112	112	112	112	112	112	112	112	112	112	112	112
• Length	mm	254	254	254	254	254	254	254	254	254	254	254	254
Power supply													
Mains voltage connection													
• 1-phase		✓	--	✓	--	✓	--	✓	--	✓	--	--	--
• 3-phase		--	✓	--	✓	--	✓	--	✓	--	✓	✓	✓
Bus connection													
Integrated bus coupling units		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bus connection over plug system		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Outputs													
Control output													
1 ... 10 V DC		--	--	--	--	--	--	2	2	--	--	--	--
Control current	mA	--	--	--	--	--	--	50	50	--	--	--	--
Load output													
Floating relay contact		--	--	--	--	2	2	2	2	4	4	6	4
Number of channels (one UP and one DOWN each)		2	2	2	2	1	1	--	--	--	--	--	--
Load types													
Rated contact voltage, AC	V	230	230/400	230	230/400	230	230/400	230	230/400	230	230/400	230/400	230/400
Rated contact current	A	8	8	8	8	8/16	8/16	16	16	16	16	16	16
Inputs													
EnOcean radio receiver		--	--	--	--	--	--	--	--	--	--	--	✓

For selection and ordering data, see page 10/6.

Devices for Special Applications

Quick-Assembly Systems

SMS controls, flat

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
						Unit(s)	Unit(s)		
	AP 631	AP 631 shutter/blind actuators	B	5WG1 631-3AL01		1	1	030	0.320
		1-phase, gesis KNX V-0/2W SI 1PH							
	AP 631/02	AP 631/02 shutter/blind actuators	B	5WG1 631-3AL02		1	1	030	0.320
		3-phase, gesis KNX V-0/2W SI							
	AP 631/51	AP 631/51 shutter/blind actuators	B	5WG1 631-3AL51		1	1	030	0.408
		1-phase, gesis KNX V-0/2W 1PH							
	AP 631/52	AP 631/52 shutter/blind actuators	B	5WG1 631-3AL52		1	1	030	0.408
		3-phase, gesis KNX V-0/2W							
	AP 631/11	AP 631/11 combination actuators	B	5WG1 631-3AL11		1	1	030	0.408
		1-phase, gesis KNX, V-0/2+1W 1PH							
	AP 631/12	AP 631/12 combination actuators	B	5WG1 631-3AL12		1	1	030	0.408
		3-phase, gesis KNX, V-0/2+1W							
	AP 631/21	N 631/21 switch/dimming actuators	B	5WG1 631-3AL21		1	1	030	0.408
		1-phase, gesis KNX V-0/2SD 1PH							
	AP 631/22	N 631/22 switch/dimming actuators	B	5WG1 631-3AL22		1	1	030	0.408
		3-phase, gesis KNX V-0/2SD							
	AP 631/43	AP 631/43 switch actuators	B	5WG1 631-3AL43		1	1	030	0.420
		1-phase, gesis KNX V-0/4b 1PH							
	AP 631/44	AP 631/44 switch actuators	B	5WG1 631-3AL44		1	1	030	0.420
		3-phase, gesis KNX V-0/4b							
	AP 631/32	AP 631/32 switch actuators	B	5WG1 631-3AL32		1	1	030	0.408
		3-phase, gesis KNX V-0/6							
	AP 631/62	AP 631/62 switch actuators, Gateway EnOcean/KNX	B	5WG1 631-3AL62		1	1	030	0.400
		3-phase, gesis KNX V-56/4							

Gateways, Interface Converters

11

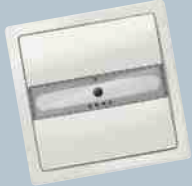


11/2	Introduction
11/5	KNX/Ethernet
11/7	KNX/DALI
11/9	KNX/USB
11/11	KNX/RS232
11/13	KNX/infrared
11/16	KNX/KNX radio
11/17	KNX/EnOcean
11/18	KNX/LOGO!
11/19	KNX/SIMATIC S7
11/21	KNX/telephone

Gateways, Interface Converters

Introduction

Overview

Devices		Application	Page
	KNX/Ethernet	Communication over fast Ethernet data network, whether internally or for remote control.	11/5
	KNX/DALI	For the control of ECGs over DALI interface.	11/7
	KNX/USB	The PC interface over installed USB sockets.	11/9
	KNX/RS232	The PC interface over installed plug-and-socket devices in different DELTA designs.	11/11
	KNX/infrared	Remote control over hand-held and wall-mounted transmitters. In various DELTA designs or independent of design.	11/13
	KNX/KNX radio	Wireless remote control and expansion made easy. For i-system, DELTA profil and DELTA style.	11/16

Gateways, Interface Converters

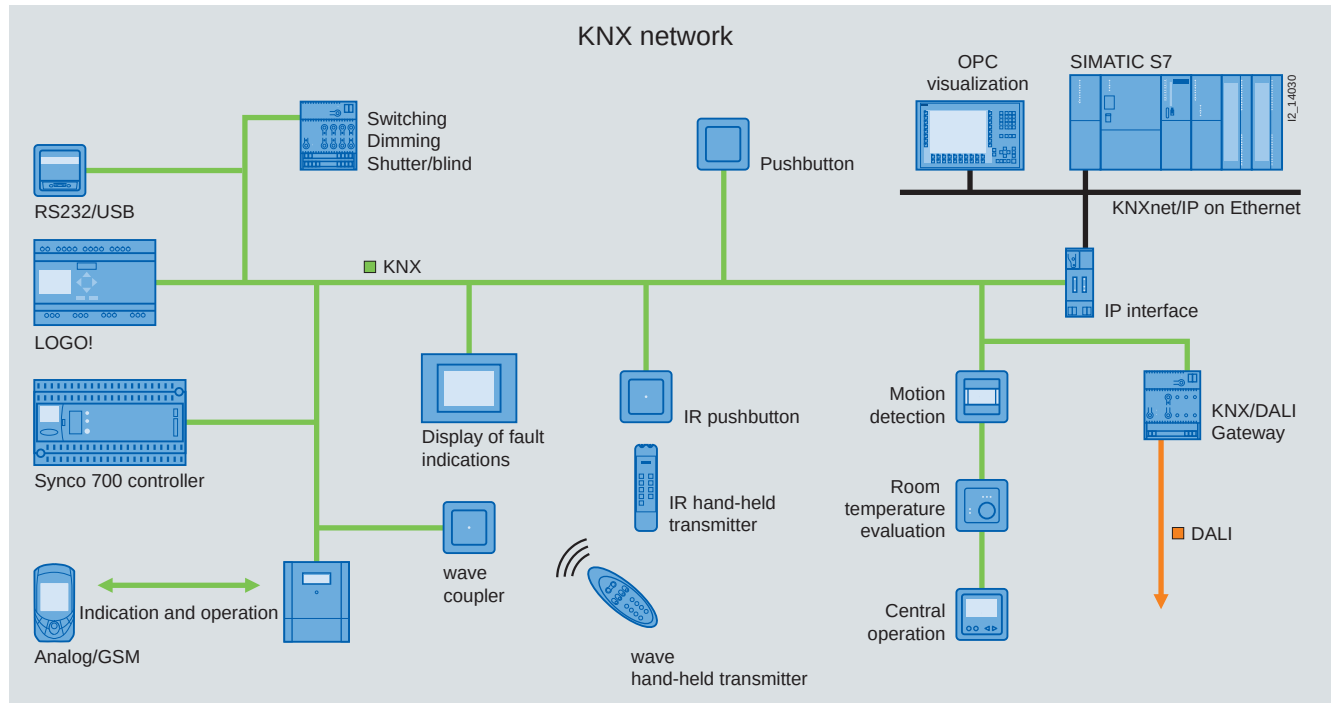
Introduction

Devices		Application	Page
	KNX/EnOcean	Integration of battery-free EnOcean pushbuttons in GAMMA <i>instabus</i> systems.	11/17
	KNX/LOGO!	More functions with modern small control systems.	11/18
	KNX/SIMATIC S7	The key to the world of automation.	11/19
	KNX/telephone	Connection to telephone.	11/21

Gateways, Interface Converters

Introduction

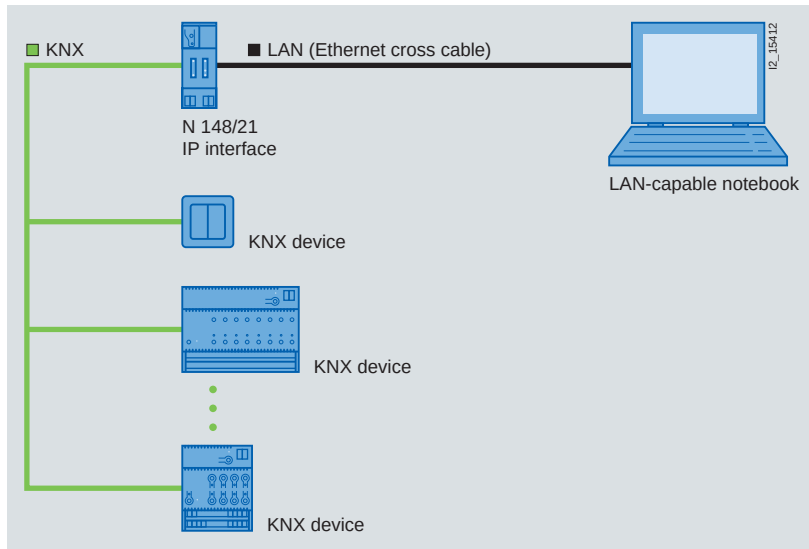
The KNX network



GAMMA *instabus* offers interfaces to many other technologies, such as Ethernet (LAN), lighting controls with DALI. Thus, it is simple to exchange information and data over the KNX network. In particular, the KNXnet/IP supports connection to building management systems (OPC, PROFINET, SIMATIC S7, etc.).

Overview

Faster downloads save time



With the new KNXnet/IP standard, KNX telegrams can be transmitted over Ethernet (LAN). This enables new applications and solutions.

Existing network infrastructures and technologies are used to transmit KNX data over greater distances.

Links between buildings and/or building levels can be clearly and easily implemented using KNXnet/IP, see chapter "Application examples".

Technical specifications

Type				
Enclosure data				
Design	N	N	N	N
Modular installation devices for mounting on TH35 EN 60715 mounting rail	✓	✓	✓	✓
Width (1 MW = 18 mm)	2 MW	2 MW	4 MW	4 MW
Display/control elements				
LEDs for indicating that the device is ready-to-run, KNX communication, IP communication	✓	✓	✓	✓
LCD	--	--	✓	--
Power supply				
Electronics powered over an external AC/DC power supply unit	V	12 ... 30	12 ... 30	12 ... 30
Bus connection				
Integrated bus coupling units	✓	✓	✓	✓
Bus connection via bus terminal	✓	✓	✓	✓
Mains connection				
Ethernet connection over RJ45 socket	✓	✓	✓	✓
Plug-in terminal block for the connection of an external power supply unit	✓	✓	✓	--
Gateway				
Supports KNXnet/IP	✓	✓	✓	✓
Line coupler function	--	✓	--	--
Interface functions	✓	✓	✓ ²⁾	✓ ²⁾
Integrated realtime clock weekly scheduling program for 100 scheduled entries/astro function	--	--	✓	--
Yearly time switching functions	--	--	✓	--
Event entries	--	--	200	--
Logic gate	--	--	30	--
Web servers	--	--	--	✓

1) On request.

2) ETS3 and visualization.

Gateways, Interface Converters

KNX/Ethernet

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
	N 148/21	N 148/21 IP interfaces	UL ▶	5WG1 148-1AB21		1	1	030	0.126
5WG1 148-1AB21									
	N 146	N 146 IP routers	▶	5WG1 146-1AB01		1	1	030	0.126
5WG1 146-1AB01									
	N 350E	N 350E IP controllers 30 logic gates, 200 event entries, weekly scheduling program, integrated IP interface	▶	5WG1 350-1EB01		1	1	030	0.184
5WG1 350-1EB01									
	N 151	N 151 IP viewers	A	5WG1 151-1AB01		1	1	030	0.150
5WG1 151-1EB01									

Technical specifications

					
Type	N 525E	N 141	GE 141		
Enclosure data					
Design	N	N	GE		
Modular installation devices for mounting on TH35 EN 60715 mounting rail	✓	✓	--		
Enclosures for device installation	--	--	✓		
Dimensions					
• Height	mm			42	
• Width (1 MW = 18 mm)	mm			274.5	
• Depth	mm	4 MW	4 MW	28	
Display/control elements					
LED for status indication per output ON/OFF)	✓	✓	--		
Power supply					
Electronics powered over bus voltage	--	--	✓		
With electronics powered over an integrated power supply unit	✓	✓	--		
DALI outputs powered over an integrated power supply unit	✓	✓	✓		
Bus connection					
Integrated bus coupling units	✓	✓	✓		
Bus connection over contact system to data rail	✓	✓	--		
Bus connection via bus terminal	✓	✓	✓		
Outputs					
Control outputs					
DALI outputs (lines)	8	1	1		
DALI output acc. to IEC 60929 for DALI ECG (16 V, floating, short-circuit resistant)	✓	✓	✓		
Max. ECG per output (Osram Dynamik 58 W)	8	64	64		
Application program	980801	802701	801805 (ETS2)	802003 (ETS3)	801808 (ETS3)
Functions					
Direct operation	✓	✓	--	--	--
Configurable behavior in the event of a bus power failure/recovery	✓	✓	✓	✓	✓
Support of CIN	--	✓	--	--	--
Scene control					
Integrated 8-bit scene control	✓	✓	✓	✓	✓
Scenes to be integrated per DALI output	16	16	16	16	16
Effect control					
Integrated effect control (one-off or cyclic chaselight operation, color control)	--	✓	--	--	--
Test function over ETS					
Testing individual ECGs	--	✓	--	✓	--
Testing group assignment	--	✓	✓	✓	✓
Testing scenes	--	✓	✓	✓	✓
Testing effects	--	✓	--	--	--
Group control					
Up to 16 groups per DALI output	--	✓	✓	✓	✓
• Switching ON/OFF					
• BRIGHTER/DARKER dimming					
• Set value					
Individual ECG control					
Operation of individual ECG with	--	✓	--	✓	--
• Switching ON/OFF					
• Set value					
Time functions					
Timer mode, 1-step (automatic stairwell switch)	✓	✓	✓	✓	✓
Timer mode, 2-step	✓	✓	✓	✓	✓
Night mode (lighting for cleaning)	✓	✓	✓	✓	✓
Warning of impending OFF	✓	✓	✓	✓	✓

Gateways, Interface Converters

KNX/DALI

Type	 N 525E 980801	 N 141 802701	 GE 141 801805 (ETS2)	802003 (ETS3)	801808 (ETS3)
Application program					
Dimming					
BRIGHTER/DARKER dimming	✓	✓	✓	✓	✓
Adjustable dimming time	✓	✓	✓	✓	✓
Brightness limitation, adjustable min. dimming value/max. dimming value	✓	✓	✓	✓	✓
Switching					
Switching ON/OFF	✓	✓	✓	✓	✓
Configurable starting value	✓	✓	✓	✓	✓
Switching ON/OFF possible over BRIGHTER/DARKER dimming	✓	✓	✓	✓	✓
Status					
DALI short circuit	✓ ¹⁾	✓	✓	✓	✓
DALI power supply	✓	✓	✓	✓	✓
Status output (ON/OFF, value, lamp fault, ECG fault)	✓	--	--	--	--
Status group (ON/OFF, value, lamp fault, ECG fault)	--	✓	✓	✓ ²⁾	✓
Status ECG (ON/OFF, value, lamp fault, ECG fault)	--	✓	--	✓	--

1) Per channel.

2) Status ON/OFF, value.

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
	N 141	<i>instabus</i>/N 141 DALI gateways	UL ▶	5WG1 141-1AB01	1	1	030	0.200
	GE 141	KNX EIB/GE 141 DALI interfaces	UL ▶	5WG1 141-4AB01	1	1	030	0.220
	N 525E	N 525E switch/dimming actuators 8 x DALI outputs, 8 DALI ECG per output	▶	5WG1 525-1EB01	1	1	030	0.300

5WG1 525-1EB01

Overview

For connection of a PC over USB interface for parameter assignment, visualization, logging and diagnosis of bus devices.

Technical specifications

Design		
Type	N 148/11	UP 146E UP 142E
DELTA profil/style/ ambiente		
Enclosure data		
Design	N	UP
Modular installation devices for mounting on TH35 EN 60715 mounting rail	✓	--
Dimensions		
• Height	mm	65
• Width (1 MW = 18 mm)	mm	65
• Depth	mm	42
Power supply		
Bus-powered electronics or over USB through a connected PC	✓	✓
Bus connection		
Integrated bus coupling units	✓	--
Plug onto UP 110 bus coupling unit	--	✓
Plug onto UP 114 bus coupling unit	--	✓
Bus connection over contact system to data rail	✓	--
Bus connection via bus terminal	✓	✓
Gateway		
Transmission PC – USB	USB 1.1 or higher	USB 1.1 or higher
Electrically isolated access to the bus line over integrated socket	USB (type B)	USB (type B)
Access to all bus devices in the system	✓	✓

Gateways, Interface Converters

KNX/USB

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
Design-independent								
	N 148/11	N 148/11 USB interfaces	UL ▶ 5WG1 148-1AB11		1	1	030	0.840
DELTA profil								
	UP 146E	UP 146E USB interfaces ¹⁾²⁾						
		• Pearl gray	B 5WG1 146-2EB01		1	1	022	0.092
		• Titanium white	▶ 5WG1 146-2EB11		1	1	022	0.091
		• Anthracite	B 5WG1 146-2EB21		1	1	022	0.092
		• Silver	C 5WG1 146-2EB71		1	1	022	0.091
DELTA style								
	UP 146E	UP 146E USB interfaces ¹⁾²⁾	▶ 5WG1 146-2EB11		1	1	022	0.091
		• Titanium white						
DELTA ambiente								
	UP 142E	UP 142E USB interfaces ¹⁾²⁾ (to be discontinued)	B 5WG1 142-2EB01		1	1	022	0.091
		• Arctic white						

5WG1 142-2EB01

¹⁾ The bus coupling unit must be ordered separately.²⁾ The matching design frame must be ordered separately.

Overview

For connection of a PC over RS232 interface for parameter assignment, visualization, logging and diagnosis of bus devices.

Technical specifications

Design				
Type		N 148/02	N 148/04	UP 146 UP 142
Enclosure data				
Design		N	N	UP
Modular installation devices for mounting on TH35 EN 60715 mounting rail		✓	✓	--
Dimensions				
• Height	mm	3 MW	3 MW	65
• Width (1 MW = 18 mm)	mm			65
• Depth	mm			42
Power supply				
Bus-powered electronics or over RS232 through a connected PC		✓	✓	✓
Bus connection				
Integrated bus coupling units		✓	✓	--
Plug onto UP 110 bus coupling unit		--	--	✓
Plug onto UP 114 bus coupling unit		--	--	✓
Bus connection over contact system to data rail		✓	✓	--
Gateway				
Transmission rate PC – RS232	bit/s	9600	9600, 19200 (for FT1.2)	9600
Can be switched between standard protocol and FT1.2		--	On the device	--
Electrically isolated access to the bus line over integrated socket		SUB-D, 9-pole	SUB-D, 9-pole	SUB-D, 9-pole
Access to all bus devices in the system		✓	✓	✓

Gateways, Interface Converters

KNX/RS232

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
Design-independent					Unit(s)	Unit(s)		
	N 148/02	N 148/02 RS232 interfaces	UL ▶	5WG1 148-1AB02	1	1	030	0.172
	N 148/04	N 148/04 RS232 interfaces Can be switched to FT 1.2 protocol	UL B	5WG1 148-1AB04	1	1	030	0.178
DELTA profil								
	UP 146	UP 146 RS232 interfaces ¹⁾²⁾ • Pearl gray • Titanium white • Anthracite • Silver	B	5WG1 146-2AB01	1	1	022	0.088
			▶	5WG1 146-2AB11	1	1	022	0.088
			B	5WG1 146-2AB21	1	1	022	0.088
			C	5WG1 146-2AB71	1	1	022	0.088
DELTA style								
	UP 146	UP 146 RS232 interfaces ¹⁾²⁾ • Titanium white	▶	5WG1 146-2AB11	1	1	022	0.088
DELTA ambiente								
	UP 142	UP 142 RS232 interfaces ¹⁾²⁾ (to be discontinued) • Arctic white	B	5WG1 142-2AB01	1	1	022	0.088

¹⁾ The bus coupling unit must be ordered separately.

²⁾ The matching design frame must be ordered separately.

Technical specifications

Design	DELTA profil				DELTA style			DELTA ambiente
	N 450/02	UP 233	UP 234	UP 235	UP 285E	UP 286E	UP 287E	
Type	7F0301	900B02	900B02	900B02	900B02	900B02	900B02	900B02
Application program	7F0301	900B02	900B02	900B02	900B02	900B02	900B02	900B02
Display/control elements								
Individual pushbuttons	--	2	4	8	2	4	8	8
Pushbutton pairs	--	1	2	4	1	2	4	4
Operation (v: vertical, h: horizontal)	--	v	v	v	v	v	v	v
LED per pushbutton pair for status indication or configurable as orientation light	--	✓	✓	✓	✓	✓	✓	✓
Separate LED for orientation light (ON/OFF configurable)	--	--	--	--	--	--	--	✓
Labeling field	--	✓	✓	✓	✓	✓	✓	--
Pictographs supplied	--	--	--	--	--	--	--	✓
Bus connection								
Plug onto UP 114 bus coupling unit	--	✓	✓	✓	✓	✓	✓	✓
Inputs								
IR receiver/decoder	✓ (with S 440)	✓	✓	✓	✓	✓	✓	✓
Integration of 14 further pushbutton pairs of IR hand-held/wall-mounted transmitters	✓	✓	✓	✓	✓	✓	✓	✓
Functions								
Max. number of group addresses	22	39	39	39	39	39	39	39
Max. number of assignments	22	40	40	40	40	40	40	40
Switching								
Switching ON/OFF	✓	✓	✓	✓	✓	✓	✓	✓
Switching OVER	✓	✓	✓	✓	✓	✓	✓	✓
Pushbutton function (bell function)	--	✓	✓	✓	✓	✓	✓	✓
Value transmission								
Value transmission, 8-bit	✓	✓	✓	✓	✓	✓	✓	✓
Dimming								
Dimming with stop telegram (4 bit)	✓	✓	✓	✓	✓	✓	✓	✓
Dimming with cyclic transmission (4 bit)	✓	✓	✓	✓	✓	✓	✓	✓
Short or long button press (ON/OFF or BRIGHTER/DARKER), configurable	✓	✓	✓	✓	✓	✓	✓	✓
Shutter/blind								
Shutter/blind control	✓	✓	✓	✓	✓	✓	✓	✓
Short or long button press (slat adjustment/STOP or UP/DOWN), configurable	✓	✓	✓	✓	✓	✓	✓	✓
Scene								
Store and call up scene, 1-bit in conjunction with scene module	4	2	4	8	2	4	8	8
Short or long button press (store/call up scene), configurable	✓	✓	✓	✓	✓	✓	✓	✓
Status								
Status indication of any status objects (1-bit)	--	✓	✓	✓	✓	✓	✓	✓
Status indication of pushbutton objects	--	✓	✓	✓	✓	✓	✓	✓

For selection and ordering data, see page 11/14.

Type	Description
 N 450	N 450 IR decoders - Parallel connection of up to four S 440 IR receivers - Conversion of IR telegrams incoming from an IR receiver into bus telegrams - Control of up to 22 functions (switching ON/OFF/OVER, dimming, value transmission, shutter/blind control or call up/store scenes) - Electronics powered over bus voltage - Integrated bus coupling units - Bus connection over contact system to data rail - Modular installation devices for mounting on TH35 EN 60715 mounting rail - Width: 2 MW (1 MW = 18 mm)
Accessories	
 S 440	S 440 IR receivers for N 450 IR decoders - For reception and amplification of IR signals transmitted from IR wall-mounted transmitters or IR hand-held transmitters, for conversion into electrical signals - Powered over the IR decoder - For connection to an N 450 IR decoder via a 1 m cable (extendable up to 50 m), including clamping springs and rosette for installation in ceilings, walls or luminaires - Dimensions (H x W x D): 25 x 26 x 65 mm

Gateways, Interface Converters

KNX/infrared

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		

Design-independent



5WG1 450-1AB02

N 450/02 **N 450/02 IR decoders**
(to be discontinued)



5WG1 450-1AB02

1 1 030 0.105



5WG1 440-7AB01

S 440 **S 440 IR receivers for N 450/02 IR decoders**
(to be discontinued)



5WG1 440-7AB01

1 1 030 0.072

DELTA profil



5WG1 233-2AB11

UP 233 **UP 233 pushbuttons, single, IR receiver, neutral¹⁾²⁾**

- Pearl gray
- Titanium white
- Anthracite
- Silver

B
B
B
B

5WG1 233-2AB01
5WG1 233-2AB11
5WG1 233-2AB21
5WG1 233-2AB71

1 1 022 0.038
1 1 022 0.038
1 1 022 0.038
1 1 022 0.038



5WG1 234-2AB11

UP 234 **UP 234 pushbuttons, double, IR receiver, neutral¹⁾²⁾**

- Pearl gray
- Titanium white
- Anthracite
- Silver

B
B
B
B

5WG1 234-2AB01
5WG1 234-2AB11
5WG1 234-2AB21
5WG1 234-2AB71

1 1 022 0.038
1 1 022 0.038
1 1 022 0.038
1 1 022 0.038



5WG1 235-2AB11

UP 235 **UP 235 pushbuttons, quadruple, IR receiver, neutral¹⁾²⁾**

- Pearl gray
- Titanium white
- Anthracite
- Silver

B
B
B
B

5WG1 235-2AB01
5WG1 235-2AB11
5WG1 235-2AB21
5WG1 235-2AB71

1 1 022 0.038
1 1 022 0.038
1 1 022 0.038
1 1 022 0.038

¹⁾ The bus coupling unit must be ordered separately.

²⁾ The matching design frame must be ordered separately.

Gateways, Interface Converters

KNX/infrared

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
DELTA style					Unit(s)	Unit(s)		
	UP 285E UP 285E pushbuttons¹⁾²⁾ Single, IR receiver, neutral • Titanium white • Basalt black	C	5WG1 285-2EB11		1	1	022	0.038
		B	5WG1 285-2EB21		1	1	022	0.055
5WG1 285-2EB11								
	UP 286E UP 286E pushbuttons¹⁾²⁾ Double, IR receiver, neutral • Titanium white • Basalt black	C	5WG1 286-2EB11		1	1	022	0.038
		B	5WG1 286-2EB21		1	1	022	0.036
5WG1 286-2EB11								
	UP 287E UP 287E pushbuttons¹⁾²⁾ Quadruple, IR receiver, neutral • Titanium white • Basalt black	▶	5WG1 287-2EB11		1	1	022	0.038
		B	5WG1 287-2EB21		1	1	022	0.036
5WG1 287-2EB11								
DELTA ambiente								
	UP 284E UP 284E pushbuttons¹⁾²⁾ (to be discontinued) Quadruple, IR receiver • Arctic white/arctic white • Arctic white/steel	B	5WG1 284-2EB01		1	1	022	0.084
		B	5WG1 284-2EB03		1	1	022	0.084
5WG1 284-2EB01								

¹⁾ The bus coupling unit must be ordered separately.²⁾ The matching design frame must be ordered separately.

Gateways, Interface Converters

KNX/KNX radio

Technical specifications

Type	Description
 UP 140	UP 140 wave/instabus couplers - For coupling GAMMA wave with GAMMA <i>instabus</i> - Coupling of a total of up to 50 GAMMA wave sensor channels with GAMMA <i>instabus</i> actuator channels or GAMMA <i>instabus</i> sensor channels with GAMMA wave actuator channels - Pushbutton rocker, single with intermediate position - Vertical operation - ETS3 and higher supports configuration of the functions: switching, switching and dimming, shutter/blind control or scene control - Short and long button press for ON/OFF, BRIGHTER/DARKER for dimming or UP/DOWN and adjustment of slats for shutter/blind control - Storage and call up of up to two scenes 1 LED for the indication of telegram transmissions - KNX radio transmitter/receiver for 868 MHz 10-pole plug for plugging onto a UP 114 bus coupling unit, version BCU 2.1.

	i-system	DELTA profil	DELTA style
	Single	Single	Single
Dimensions			
• Length	mm 55	65	68
• Width	mm 55	65	68
• Depth	mm 13	14	16.5

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
i-system								
	UP 140	UP 140 wave couplers/ <u>instabus</u> ¹⁾²⁾						
		• Titanium white • Carbon metallic • Aluminum metallic	►	5WG3 140-2HB11	1	1	022	0.050
			B	5WG3 140-2HB21	1	1	022	0.050
			A	5WG3 140-2HB31	1	1	022	0.050
5WG3 140-2HB11								
DELTA profil								
	UP 140	UP 140 wave couplers/ <u>instabus</u> ¹⁾²⁾						
		• Pearl gray • Titanium white • Anthracite • Silver	B	5WG3 140-2AB01	1	1	022	0.050
			►	5WG3 140-2AB11	1	1	022	0.050
			B	5WG3 140-2AB21	1	1	022	0.050
A	5WG3 140-2AB71	1	1	022	0.050			
5WG3 140-2AB11								
DELTA style								
	UP 140	UP 140 wave couplers/ <u>instabus</u> ¹⁾²⁾						
		• Titanium white • Basalt black	►	5WG3 140-2GB11	1	1	022	0.050
			B	5WG3 140-2GB21	1	1	022	0.050
5WG3 140-2GB11								

5WG3 140-2HB11

5WG3 140-2AB11

5WG3 140-2GB11

1) The bus coupling unit must be ordered separately.

2) The matching design frame must be ordered separately.

Technical specifications

Type	Description
 AP 631/62	Gateway EnOcean/KNX, AP 631/62 switch actuators, 3-phase • Plug-in connector outputs, gesis GST 18i3 black • Mains voltage connection, 3-phase • Integrated bus coupling units • Bus connection over plug system • 4 channels • Rated contact voltage, 230/400 V AC • Rated contact current 16 A • EnOcean radio receiver • Dimensions (H x W x D): 32 x 254 x 112 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
	AP 631/62	Gateway EnOcean/KNX, AP 631/62 switch actuators	B	5WG1 631-3AL62	1	1	030	0.400
3-phase, gesis KNX V-56/4								

5WG1 631-3AL62

Gateways, Interface Converters

KNX/LOGO!

Technical specifications

Type	Description
	LOGO! KNX/LOGO! communication modules • For connection of LOGO! to KNX, as slave module for the LOGO! logic module (12/24 V or 115/240 V) and as bus devices on KNX • For linking transmitted KNX data points and LOGO! inputs and outputs over logic and timer functions through LOGO! • For the linking and transmitting over KNX of up to 8 binary inputs and 4 binary outputs of LOGO! and up to 16 virtual KNX binary inputs, 12 virtual KNX binary outputs, 8 virtual KNX analog inputs and 2 virtual KNX analog outputs • Transmission of date and time of the LOGO! realtime clock over KNX • Two LEDs for the display of the communication status of LOGO! and KNX • Electronics powered over an external power supply unit for 24 V AC/DC, 25 mA • Integrated bus coupling units • Bus connection over screw terminals • Modular installation devices for mounting on TH35 EN 60715 mounting rail • Width: 2 MW (1 MW = 18 mm)

Selection and ordering data

Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
				Unit(s)	Unit(s)		
 6BK1700-0BA00-0AA1	B	6BK1700-0BA00-0AA1		1	1	475	0.107

KNX/SIMATIC S7

Overview

The level of automated applications also increases in the area of building automation. Customers are keen to use components from the field of industrial automation for the automation of infrastructure facilities. This is now possible using SIEMENS IP/Ethernet components.

Benefits

Use of tried and tested industrial components in the field of building automation, i.e. utilization of building automation data for the automation of factories. Simple transfer of configuration data from ETS3.

Application

Automation and monitoring of buildings using KNX devices with components from the SIMATIC product range.

Function

Modules for communication of a SIMATIC S7 with KNX bus over IP/Ethernet using a KNXnet/IP interface:

- N 146 IP routers
- N 148/21 IP interfaces
- N 350E IP controllers
- N 151 IP viewers

The KNX/EIB2S7 program package comprises modules for communication to the IP router/interface/controller/viewer and an editor for user-friendly parameterization of the modules.

Addressing is implemented over group addresses on the side of KNX and with DB and DW on the side of SIMATIC. Assignment of the various address terms to one another is implemented largely automatically in the KNX/EIB2S7 Editor.

One SIMATIC S7 can be connected to up to 5 KNXnet/IP interfaces, which permits the monitoring, operation and reading of a total of up to 7000 group addresses (depending on control type and the number of KNXnet/IP interfaces connected).

The modules also support the cyclic reading of values in 5 different, freely configurable cycles (10 min. - 1 x daily).

The following data point types are supported:

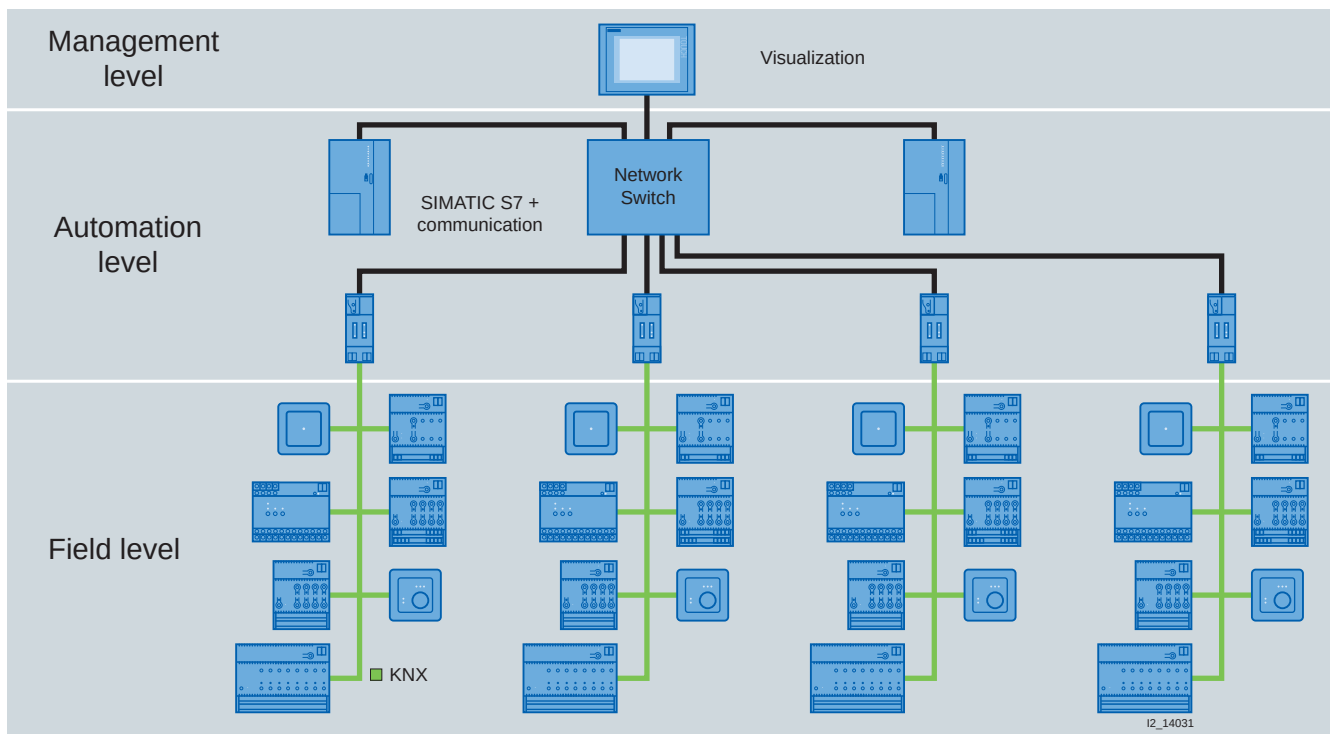
Data point type	Application	Length	Receive	Write	Read
EIS 1	Switching	1 bit	X	X	X
EIS 2	Dimming	4 bit	X	X	X
EIS 3	Time	3 byte	--	X	--
EIS 4	Date	3 byte	--	X	--
EIS 5	Floating-point	2 byte	X	X	X
EIS 6	Scaling	8 bit	X	X	X
EIS 7	Motor control	1 bit	X	X	X
EIS 8	Priority	2 bit	X	X	--
EIS 9	Floating-point	4 byte	X	X	X
EIS 11	32-bit counter	4 byte	X	X	X
EIS 14	8-bit counter	1 byte	X	X	X
EIS 15	String	14 byte	--	X	--

The following controllers can be used with an additional Ethernet CP:

- S7 314
- S7 315-2 DP
- S7 317-2 DP
- S7 319-3 PN/DP
- S7 412-2 MPI/DP
- S7 414-2 MPI/DP
- S7 416-2 MPI

The following Ethernet CPs can be implemented:

- CP 343-1
- CP 443-1



Gateways, Interface Converters

KNX/SIMATIC S7

Selection and ordering data

Version		DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
KNX/EIB2S7			6AV6643-7AC10-0AA0			Unit(s)	Unit(s)	
						On req.		

6AV6643-7AC10-0AA0

Technical specifications

Type	Description
 AP 140/02 AP 140/22	Telecontrol devices TC Plus EIB • For connection of KNX to the telephone system • 6 signal inputs for floating contacts • 6 switching outputs 12 V DC, 100 mA for the control of relays • Additional 12 V DC switching output, 100 mA for the control of a local acoustic alarm signal generator if a transmitted alarm indication is not acknowledged • Additional 10 KNX switching functions and 10 KNX alarm functions • 4-line LCD for the indication of device states • Monitoring of telephone cable • Adjustable 4-digit code number for protection against unauthorized switching • Operation with MFV-capable telephone or MFV hand-held transmitter • Recordable announcement and voice-supported user prompting • 6 x 4 freely programmable destination numbers in the event of alarm • 4 dial attempts per destination number • Connection to the telephone network over an N-coded TAE connecting cable • Electronics powered by a plug-in power supply unit for connection to 230 V AC, with alternative power supply over an external power supply unit for 12 V DC • Surface-mounting enclosure, RAL 9010, degree of protection IP30 • Dimensions (H x W x D): 251 x 204 x 49 mm
	Accessories
S 190	S 190 headphone/speaker sets for AP 140/02 and AP 140/22 TC Plus Headphone/speaker set for recording announcements.

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
	AP 140/22		Telecontrol devices TC Plus EIB GSM AP 140/22	C	5WG1 140-7AU22	1	1	030 1.520
			KNX connection to GSM telephone network ¹⁾					
	AP 140/02		Telecontrol devices TC Plus EIB analog AP 140/02	C	5WG1 140-7AU02	1	1	030 1.500
			KNX connection to analog telephone network ¹⁾					
		Accessories						
S 190		S 190 headphone/speaker sets for AP 140 TC Plus	X	5WG1 190-7AU01	1	1	030 0.220	

5WG1 140-7AU22

¹⁾ The headphone/speaker set for recording announcements must be ordered separately.

Gateways, Interface Converters

Notes

11





12/2

Introduction**With KNX Connection**

12/3 General data
12/5 Motion/presence
12/7 Brightness
12/7 Wind
12/8 Temperature
12/8 Leakage
12/9 Fire

Without KNX Connection

12/10 Weather sensors

Physical Sensors

Introduction

Overview

		Application	Page
With KNX connection			
	Motion/presence	Recording of motion and presence in a range of different designs.	12/5
	Brightness	Brightness sensors measure the brightness value - both indoors and outdoors.	12/7
	Wind	Wind measurement with no mechanical components.	12/7
	Temperature	The temperature sensors measure the current temperature.	12/8
	Leakage	The water sensors indicate unexpected water. In DELTA profil or DELTA style design.	12/8
	Fire	The fire combination alarm with integrated bus coupling unit for the early detection of fires.	12/9
Without KNX connection			
	Weather sensors	Whether wind, temperature, light or rain – the weather sensors signal the values gathered by the weather system.	12/10

Technical specifications

Type	UP 255 UP 256 UP 257 UP 258H	UP 258/11	AP 251	UP 258/21	GE 252	GE 254	GE 253	AP 254/02	N 258/02	AP 256	UP 272	AP 255/12 UP 255/11	AP 257/41
Enclosure data													
Modular installation devices for mounting on TH35 EN 60715 mounting rail	--	--	--	--	--	--	--	--	✓	--	--	--	--
Modular installation device in oblong design, for installation in luminaires for fluorescent lamps	--	--	--	--	✓	✓	✓	--	--	--	--	--	--
Surface mounting	--	--	✓	✓	✓	✓	✓	✓	--	✓	--	✓	✓
Mounting on a flush-mounting box using a mounting plate	--	✓	--	✓	--	--	--	--	--	--	--	--	--
Mounting in intermediate ceilings	--	--	--	--	✓	✓	✓	--	--	--	--	--	--
Degree of protection	IP20	IP20	IP55	IP20	IP20	IP20	IP20	IP54	IP20	IP20	IP20		
Mast mounting	--	--	--	--	--	--	--	--	--	--	--	--	✓
Dimensions													
• Height	mm	1) ¹⁾	87	80	102	42	42	42	110		64	65	30
• Width (1 MW = 18 mm)/Ø	mm	1) ¹⁾	87	82	102	274.5	274.5	274.5	72		65	52	67
• Depth	mm	23	60	182	33	28	28	28	54	4 MW	166	42	118
Power supply													
Electronics powered over bus voltage	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	✓	✓	--
Electronics powered over an integrated power supply unit for supply voltage 230 V AC	--	--	--	--	--	--	--	--	✓	--	--	--	2)
Bus connection													
Integrated bus coupling units	--	--	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	✓
Plug onto UP 110 bus coupling unit	✓	✓	--	--	--	--	--	--	--	--	✓	--	--
Plug onto UP 114 bus coupling unit	✓	✓	--	--	--	--	--	--	--	--	✓	--	--
Bus connection via bus terminal	--	--	✓	✓	✓	✓	✓	✓	✓	✓	--	✓	✓
Bus connection over contact system to data rail	--	--	--	--	--	--	--	--	✓	--	--	--	--
Transmission of sensor values over bus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

1) Design-dependent.

2) 4AC2 402 external power supply unit.

Physical Sensors

With KNX Connection

General data

Type	UP 255 UP 256 UP 257 UP 258H	UP 258/11	AP 251	UP 258/21	GE 252	GE 254	GE 253	AP 254/02	N 258/02	AP 256	UP 272	AP 255/12 UP 255/11	AP 257/41
Motion/presence													
Motion	✓	✓	✓	✓	--	--	--	--	--	--	--	--	--
Presence	--	✓	--	✓	--	--	--	--	--	--	--	--	--
Horizontal sensing angle	180°	360°	290°	360°	--	--	--	--	--	--	--	--	--
Vertical sensing angle	--	120°	--	120°	--	--	--	--	--	--	--	--	--
Range to the front	m 10	--	8	--	--	--	--	--	--	--	--	--	--
Range on each side, up to	m 6	4.5 ²⁾	8	3.5 ²⁾	--	--	--	--	--	--	--	--	--
Adjustable range	✓	--	--	--	--	--	--	--	--	--	--	--	--
Brightness													
Measuring range	Lux 1 ... 1000	100 ... 1600 (standard) 25 ... 200 (expanded)	--	10 ... 1500	200 ... 1900	0 ... 2000	0 ... 16000	1 ... 100000	--	--	--	0 ... 2000	--
For measuring outdoor brightness	--	--	--	--	--	--	✓	✓	--	--	--	--	--
For measuring indoor brightness	✓	✓	--	✓	✓	--	--	--	--	--	--	✓	--
For measuring indoor brightness, taking into account indirect lighting	--	--	--	--	--	✓	--	--	--	--	--	✓	--
2 m connecting lead of sensor element (cannot be extended)	--	--	--	--	✓	✓	✓	--	--	--	--	--	--
Temperature													
Measuring range	°C --	--	--	--	--	--	--	-25 ... +55	-40 ... +150 ¹⁾	--	--	--	--
PT1000 temperature sensor input	--	--	--	--	--	--	--	--	4	--	--	--	--
Max. cable length, unshielded, untwisted	m --	--	--	--	--	--	--	--	50	--	--	--	--
Leakage													
Water indication	--	--	--	--	--	--	--	--	--	--	✓	--	--
Automatic indication in the event of a defective sensor	--	--	--	--	--	--	--	--	--	✓	✓	--	--
Fire													
Smoke indication	--	--	--	--	--	--	--	--	--	✓	--	--	--
Heat indication	--	--	--	--	--	--	--	--	--	✓	--	--	--
Automatic indication in the event of a defective sensor	--	--	--	--	--	--	--	--	--	✓	--	--	--
Wind speed													
Measuring range	m/s --	--	--	--	--	--	--	--	--	--	--	--	0 ... 70
Limit value monitoring (3 limit values)	--	--	--	--	--	--	--	--	--	--	--	--	✓
Logic operations (8 AND, 8 OR)	--	--	--	--	--	--	--	--	--	--	--	--	✓

¹⁾ On request.

²⁾ At mounting height 3 m (moving persons).

For selection and ordering data, see page 12/5 ff.

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
i-system								
	UP 258H	UP 258H motion detectors ¹⁾²⁾						
		▶	5WG1 258-2HB11	1	1	022	0.059	
			5WG1 258-2HB21	1	1	022	0.059	
			5WG1 258-2HB31	1	1	022	0.059	
		B	5WG1 258-2HB12	1	1	022	0.059	
			5WG1 258-2HB22	1	1	022	0.059	
5WG1 258-2HB32	1		1	022	0.059			
5WG1 258-2HB11								
DELTA profil								
	UP 255	UP 255 motion detectors ¹⁾²⁾						
		B	5WG1 255-2AB01	1	1	022	0.062	
			5WG1 255-2AB11	1	1	022	0.062	
			5WG1 255-2AB21	1	1	022	0.062	
			5WG1 255-2AB71	1	1	022	0.062	
		B	5WG1 255-2AB02	1	1	022	0.062	
5WG1 255-2AB12	1		1	022	0.062			
B	5WG1 255-2AB22	1	1	022	0.062			
	5WG1 255-2AB72	1	1	022	0.062			
5WG1 255-2AB11								
DELTA style								
	UP 257	UP 257 motion detectors ¹⁾²⁾						
		B	5WG1 257-2AB13	1	1	022	0.062	
			5WG1 257-2AB21	1	1	022	0.062	
			5WG1 257-2AB41	1	1	022	0.062	
		B	5WG1 257-2AB14	1	1	022	0.062	
			5WG1 257-2AB22	1	1	022	0.062	
5WG1 257-2AB42	1		1	022	0.062			
5WG1 255-2AB11								
DELTA ambiente								
	UP 256	UP 256 motion detectors ¹⁾²⁾ (to be discontinued)						
		B	5WG1 256-2AB01	1	1	022	0.062	
			5WG1 256-2AB02	1	1	022	0.062	
5WG1 256-2AB01								

5WG1 258-2HB11

5WG1 255-2AB11

5WG1 255-2AB11

5WG1 256-2AB01

¹⁾ The bus coupling unit must be ordered separately.²⁾ The matching design frame must be ordered separately.

Physical Sensors

With KNX Connection

Motion/presence

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
Design-independent					Unit(s)	Unit(s)		
 5WG1 251-3AB11	AP 251	AP 251 surface-mounting motion detectors, IP55						
		• Titanium white (similar to RAL 9010) • Anthracite	A	5WG1 251-3AB11	1	1	030	0.300
			A	5WG1 251-3AB21	1	1	030	0.300
		Accessories						
 5TC7 900		Special bases						
		For AP 251 motion detectors, IP55						
 5TC7 902		• Titanium white (similar to RAL 9010) • Anthracite	A	5TC7 900	1	1	024	0.180
			A	5TC7 901	1	1	024	0.180
		Remote controls	A	5TC7 902	1	1	024	0.080
		For AP 251 motion detectors, IP55						
 5WG1 258-2AB11	UP 258/11	UP 258/11 presence detectors¹⁾	►	5WG1 258-2AB11	1	1	030	0.221
		With brightness sensor						
 5WG1 258-2AB21	UP 258/21	UP 258/21 presence detectors	►	5WG1 258-2AB21	1	1	030	0.085
		With brightness sensor and constant light level control						
 5WG1 258-3EB21		Accessories						
	AP 258E	AP 258 surface-mounting enclosures	►	5WG1 258-3EB21	1	5	030	0.220
		UP 258/21 presence detectors						
		For fixing the presence detector as a surface mounting device.						
		Dimensions (H x W x D): 102 x 102 x 46 mm						

¹⁾ The bus coupling unit must be ordered separately.

Physical Sensors

With KNX Connection

Brightness

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
 5WG1 255-4AB12 5WG1 255-4AB11	AP 255/12	AP 255/12 brightness controllers	 B	5WG1 255-4AB12	1	1	030	0.050
	UP 255/11	UP 255/11 brightness controllers	 B	5WG1 255-4AB11	1	1	030	0.030
 5WG1 254-3EY02	AP 254/02	AP 254/02 dual sensors Brightness measurement, temperature measurement, sun protection control, lighting control	 ►	5WG1 254-3EY02	1	1	030	0.153
 5WG1 253-4AB01	GE 253	GE 253 outdoor brightness sensors For indoor mounting	►	5WG1 253-4AB01	1	1	030	0.345
 5WG1 252-4AB02 5WG1 254-4AB01	GE 252	GE 252 indoor brightness sensors	►	5WG1 252-4AB02	1	1	030	0.345
	GE 254	GE 254 indoor brightness sensors For indirect lighting	►	5WG1 254-4AB01	1	1	030	0.345

Wind

12

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
 5WG1 257-3AB41	AP 257/41	AP 257/41 wind sensors	 B	5WG1 257-3AB41	1	1	030	0.145
	Accessories							
 4AC2 402	Electronic power supply units		B	4AC2 402	1	1	027	0.080

Physical Sensors

With KNX Connection

Temperature

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
	N 258/02 N 258/02 temperature sensors For four Pt1000 sensors	B	5WG1 258-1AB02		1	1	030	0.242
5WG1 258-1AB02								
	AP 254/02 AP 254/02 dual sensors Brightness measurement, temperature measurement, sun protection control, lighting control	 ▶	5WG1 254-3EY02		1	1	030	0.153
5WG1 254-3EY02								

Leakage

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
DELTA profil								
	UP 272 UP 272 water sensors¹⁾²⁾ • Pearl gray • Titanium white • Anthracite • Silver	B ▶ B C	5WG1 272-2AB01 5WG1 272-2AB11 5WG1 272-2AB21 5WG1 272-2AB71		1 1 1 1	1 1 1 1	022 022 022 022	0.090 0.090 0.090 0.090
5WG1 272-2AB11								
DELTA style								
	UP 272 UP 272 water sensors¹⁾²⁾ • Titanium white	▶	5WG1 272-2AB11		1	1	022	0.090
5WG1 272-2AB11								

¹⁾ The bus coupling unit must be ordered separately.

²⁾ The matching design frame must be ordered separately.

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		

	AP 256	AP 256 fire combination alarms (to be discontinued)	X	5WG1 256-3AB01	1	1	030	0.240

5WG1 256-3AB01

* You can order this quantity or a multiple thereof.

Physical Sensors

Without KNX Connection

Weather sensors

Technical specifications

Weather sensors specially for AP 257, AP 257/11 and LOGO! weather systems

Type							
Enclosure data							
Surface mounting	--	--	--	✓	✓	✓	✓
Degree of protection	IP65	IP65	IP65	IP65	IP65	IP65	IP65
The following connecting leads must be used: JY(ST)Y 2 x 2 x 0.6 or PYCYM 2 x 2 x 0.6 (can be extended for a max. 20 m)	--	--	--	✓	✓	✓	✓
Dimensions							
• Height	mm	178		64	64	64	98
• Width	mm			58	58	58	64
• Depth	mm			38	38	38	38.5
• Diameter of enclosure/impeller	mm	35/150	35/150	--	--	--	--
Mounting type							
Mast mountings	✓	✓	✓	✓	✓	✓	✓
5 m fixed cable	✓	✓	✓	--	--	--	✓
Wind speed							
Detection of current wind speed	✓	✓	✓	--	--	--	--
Detection of rotor breakage	✓	--	--	--	--	--	--
Failure monitoring of wind rotor by the weather system	✓	✓	✓	--	--	--	--
Brightness							
Measuring range	lux	--	--	0 ... 255 (dusk)	--	0 ... 40000 (daylight)	--
Receiving angle	--	--	--	140° ... 160°	--	140° ... 160°	--
Measurement of outdoor brightness	--	--	--	✓	--	✓	--
Temperature							
Measuring range	°C	--	--	--	-20 ... +40	--	--
Rain							
For the detection and tripping of a switching signal by rain drops	--	--	--	--	--	--	✓
Two-step heating of sensor areas (protection against moisture) (fast drying)	--	--	--	--	--	--	✓
Heating voltage generated by weather system	--	--	--	--	--	--	✓

For selection and ordering data, see page 12/11.

¹⁾ The inner diameter of the mast must be 36 mm. No additional mast mount is required. The heating transformer must be ordered separately.

Type	Description
	M 258 heating transformers For S 258 wind rotors, heatable • Primary voltage 230 V AC • Secondary voltage 24 V AC • Fuse 80 mA, slow • Degree of protection, IP54 • Dimensions (H x W x D): 80 x 120 x 50 mm
	M 258/21 mast mountings Outer diameter 40 mm • For mounting 2 opposing sensors on a mast with an outer diameter of 40 mm, for AP 257 weather systems

Physical Sensors

Without KNX Connection

Weather sensors

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
 5WG1 258-7AB13	S 258/02	S 258/02 wind rotors Heatable, with detection of rotor breakage, for AP 257, AP 257/11 and LOGO! weather systems	B	5WG1 258-7AB02		1	1	030	0.950
	S 258/03	S 258/03 wind rotors Heatable, without detection of rotor breakage, for AP 257, AP 257/11 and LOGO! weather systems	B	5WG1 258-7AB03		1	1	030	0.950
	S 258/13	S 258/13 wind rotors Not heatable, without detection of rotor breakage, for AP 257 and AP 257/11 and LOGO! weather systems	B	5WG1 258-7AB13		1	1	030	0.575
 5WG1 258-8AB01	Accessories								
	M 258	M 258 heating transformers For S 258 wind rotors, heatable	B	5WG1 258-8AB01		1	1	030	0.568
 5WG1 258-3AB11	AP 258/11	AP 258/11 dusk sensors For AP 257, AP 257/11 and LOGO! weather systems	B	5WG1 258-3AB11		1	1	030	0.124
 5WG1 258-3AB21	AP 258/21	AP 258/21 outdoor temperature sensors For AP 257, AP 257/11 and LOGO! weather systems	B	5WG1 258-3AB21		1	1	030	0.123
 5WG1 258-3AB31	AP 258/31	AP 258/31 light sensors For AP 257, AP 257/11 and LOGO! weather systems	B	5WG1 258-3AB31		1	1	030	0.125
 5WG1 258-3AB41	AP 258/41	AP 258/41 rain sensors, heated For AP 257, AP 257/11 and LOGO! weather systems	B	5WG1 258-3AB41		1	1	030	0.447
 5WG1 258-8AB21	M 258/21	M 258/21 mast mountings Outer diameter 40 mm	B	5WG1 258-8AB21		1	1	030	0.209

Physical Sensors

Notes

12





13/2	Introduction
13/3	Logic modules, scene modules, time/event modules
13/5	Time switches and accessories
13/8	Programmable logic controllers

Control and Automation Devices

Introduction

Overview

Devices		Application	Page
	Logic modules, scene modules, time/event modules	Linking received binary signals and transmission of result over GAMMA <i>instabus</i> . Place a room into a predefined state at the touch of a button – it's easy with the scene module. For the timed control of sequences or the control of devices dependent on specific events in GAMMA <i>instabus</i> .	13/3
	Time switches and accessories	Everything you need to know about time-controlled switching - for maximum safety, convenience and energy saving.	13/5
	Programmable logic controllers	LOGO! the compact programmable controller.	13/8

Technical specifications

Type	N 305 750002	N 347/02 800C04 (ETS2) 800C09 (ETS3)	N 350 801701	N 350E ¹⁾ 908701	N 302 740202	N 341 800A01 (ETS2) 800A06 (ETS3)	N 301 720101 740301 740A01 740B01 740C01 740D01
Enclosure data							
Design	N	N	N	N	N	N	N
Modular installation devices for mounting on TH 35 EN 60715 mounting rail	✓	✓	✓	✓	✓	✓	✓
Ethernet connection over RJ45 socket	--	--	--	✓	--	--	--
Dimensions							
• Width (1 MW = 18 mm)	1 MW	1 MW	1 MW	4 MW	1 MW	1 MW	1 MW
Power supply							
Electronics powered over bus voltage	✓	✓	✓	--	✓	✓	✓
Electronics powered over an external power supply unit for AC/DC	V	--	--	12 ... 30	--	--	--
Bus connection							
Integrated bus coupling units	✓	✓	✓	✓	✓	✓	✓
Bus connection via bus terminal	✓	--	--	✓	--	--	--
Bus connection over contact system to data rail	✓	✓	✓	--	✓	✓	✓
Functions							
Logic functions							
Inputs (virtual)	--	255	60	80	4	--	8 4 -- -- -- --
Configurable inverting of inputs	--	✓	--	✓	✓	--	✓ ✓ -- -- -- --
Outputs	--	255	10	30	4	--	2 4 -- -- -- --
Configurable inverting of outputs	--	✓	✓	--	✓	--	✓ ✓ -- -- -- --
User-definable logic gate	--	127	10	30	--	--	2 -- -- -- -- --
Configurable transmission conditions	--	✓	✓ ¹⁾	✓	✓	--	-- -- -- -- -- --
Up to 30 internal flags	--	--	--	✓	--	--	-- -- -- -- -- --
Positively driven ON/OFF switching of loads (4 channels)	--	--	--	--	--	--	-- -- -- -- -- ✓
Partition control							
Partition inputs	--	--	--	--	--	--	-- -- 4 4 4 --
Controllable rooms	--	--	--	--	--	--	-- -- 4 4 4 --
Switch commands (2 x 1 bit)	--	--	--	--	--	--	-- -- ✓ -- -- --
Brightness values (1 byte)	--	--	--	--	--	--	-- -- -- ✓ -- --
Switch/dimming commands (1 bit, 4 bit)	--	--	--	--	--	--	-- -- -- -- ✓ --
Time functions							
OFF delay	--	✓	--	✓ ³⁾	✓	✓ ³⁾	--
ON delay	--	✓	--	✓ ³⁾	✓	✓ ³⁾	--
Timer mode	--	✓	--	✓ ³⁾	✓	✓ ³⁾	--
Scheduled entries	--	--	100	100	--	400	--
Weekly program	--	--	✓	✓	--	✓	--
Day, week, month, year program	--	--	--	✓	--	✓	--
Master clock (time source)	--	--	--	✓	--	--	--
Slave clock	--	--	✓ ⁴⁾	--	--	-- ⁴⁾	--
Astro function	--	--	--	✓	--	--	--
Internal clock, can be synchronized over master clock	--	--	✓ (KNX)	✓ (LAN) ⁵⁾	--	✓ (KNX)	--
Event functions							
Event entries	80 ⁷⁾	--	100	200	--	200	--
Event trigger	8	--	10	30	--	6)	--
Sequence control	✓	--	✓	✓	--	✓	--
Scene control							
Integrated 1-bit scene control	✓	--	--	✓ ⁸⁾	--	--	--
Integrated 8-bit scene control	✓	--	--	✓ ⁸⁾	--	--	--
Scenes to be integrated	8	--	--	--	--	--	--

For selection and ordering data, see page 13/4.

- 1) The software required for parameter assignment over the Ethernet interface is available on CD-ROM and is included in delivery.
- 2) Transmission filter.
- 3) Over event entries.
- 4) The following devices can be used as a master clock or time source for synchronizing the module-internal real-time clock: a time switch (e.g. 5WG1 372-5EY01) or an N 350E IP controller (5WG1 350-1EB01).

- 5) Time synchronization over time server in the data network (NTP).
- 6) On request.
- 7) 10 entries per trip unit.
- 8) Over event trigger.

Control and Automation Devices

Logic modules, scene modules, time/event modules

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
						Unit(s)	Unit(s)		
	N 305	N 305 scene/event modules		5WG1 305-1AB01		1	1	030	0.065
5WG1 305-1AB01									
	N 347/02	N 347/02 logic operation modules 127 logic gates		5WG1 347-1AB02		1	1	030	0.092
5WG1 347-1AB02									
	N 350	N 350 event, time and logic modules 10 logic gates, 10 event entries, weekly scheduling program		5WG1 350-1AB01		1	1	030	0.092
5WG1 350-1AB01									
	N 350E	N 350E IP controllers 30 logic gates, 200 event entries, weekly scheduling program, integrated IP interface		5WG1 350-1EB01		1	1	030	0.184
5WG1 350-1EB01									
	N 302	N 302 time modules		5WG1 302-1AB01		1	1	030	0.092
5WG1 302-1AB01									
	N 341	N 341 event and time modules		5WG1 341-1AB01		1	1	030	0.092
5WG1 341-1AB01									
	N 301	N 301 logic modules 1 x AND, 1 x OR, linking of 8 inputs, partition control, positively driven operation		5WG1 301-1AB01		1	1	030	0.092
5WG1 301-1AB01									

* You can order this quantity or a multiple thereof.

Technical specifications

Type	 N 350E 908701	 REG 371 221D01	 REG 372 7F0401 7F0501 7F0601	 REG 372/02 7F0401 7F0501 7F0601	 REG 373 7F0803
Enclosure data					
Modular installation devices for mounting on TH 35 EN 60715 mounting rail	✓	✓	✓	✓	✓
Dimensions • Width (1 MW = 18 mm)	MW 4	2	6	6	6
Display/control elements					
LCD for time, day of the week, daylight saving times, switching state of channels	✓ ³⁾	✓	✓	✓	✓
Jog pushbuttons for setting the time, day and program entries	✓	✓	✓	✓	✓
Programming over PC	✓ (N 350E configurator)	--	✓ (Obelisk)	✓ (Obelisk)	✓ (Obelisk)
Power supply					
Electronics powered over bus voltage	--	✓	✓	✓	✓
Additional 230 V power supply for integrated DCF77 power supply unit	--	--	--	✓	✓
Electronics powered over an external power supply unit for AC/DC	V 12 ... 30	--	--	--	--
Bus connection					
Integrated bus coupling units	✓	✓	✓	✓	✓
Bus connection via bus terminal	✓	✓	✓	✓	✓
Connection for DCF77 receiver	✓	--	--	✓	✓
Software					
Timer functions					
Channels	80 ¹⁾	2	4	4	16
Memory locations	2)	36	324	324	500
Standard day/weekly program	✓	✓	✓	✓	✓
No. of weekly progs. that can be prioritized	8	--	9	9	9
Vacation switching (duration 1 ... 99 days, preselection 0 ... 99 days)	2)	✓	✓	✓	✓
Random program	--	--	✓	✓	✓
Astro program with sunrise and sunset times	✓	--	--	--	✓
Supported telegrams					
Switching (1 bit)	✓	✓	✓	✓	✓
Set value (1 byte)	✓	✓	✓	✓	✓
Floating decimal point (2 byte), for temperature, etc.	✓	--	--	✓	--
Positively driven operation (2 bit)	--	✓	✓	✓	✓
Scenes	--	2	--	4	4
Adjustable cyclic transmission	--	✓	✓	✓	✓
Internal clock, can be synchronized over master clock by KNX	--	--	✓	--	✓
Transmission of date and time over KNX bus	✓	--	✓	✓	✓
Synchronization with DCF77 signal	--	--	--	--	✓
Time synchronization over time server in the data network	✓	--	--	--	--

1) Communication objects.

2) On request.

3) No daylight saving times, no switching state of the channels.

For selection and ordering data, see page 13/6.

Control and Automation Devices

Time switches and accessories

Type	Description
	Accessories
	PC programming sets with OBELISK memory card - For fast and easy creation of switching programs for the REG 372 4-channel time switch, the DCF-77 REG 372/02 4-channel time switch and the DCF-77 REG 373 16-channel time switch - Comprising software CD, OBELISK memory module, programming adapter and software manual - Readout and description of the memory module over the programming adapter of the PC programming set, which is connected to the serial interface of the PC - For filtering switching programs acc. to specific search criteria, with display and printout of filtered switching programs
	OBELISK 4K, EEPROM memory modules EEPROM memory module with 4 KB memory for programming the REG 372 4-channel time switch and the DCF-77 REG 372/02 4-channel time switch
	OBELISK 64K, EEPROM memory modules EEPROM memory module with 64 KB memory for programming the REG 373 16-channel time switch
	AP 390 DCF-77 aerials - For connection to up to 10 REG 372/02 year time switches, 4-channel, or REG 373 year time switches, 16-channel - Red LED lights up to indicate receipt of signal - Electronics powered with 29 V DC over 4-channel or 16-channel time switch

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	N 350E N 350E IP controllers ¹⁾ 30 logic gates, 200 event entries, weekly scheduling program, integrated IP interface	▶	5WG1 350-1EB01		1	1	030	0.184
5WG1 350-1EB01								
	REG 371 REG 371 weekly time switches ²⁾ 2-channel	▶	5WG1 371-5EY01		1	1	030	0.148
5WG1 371-5EY01								
	REG 372 REG 372 year time switches ²⁾ 4-channel	▶	5WG1 372-5EY01		1	1	030	0.360
	REG 372/2 REG 372/02 year time switches ²⁾³⁾ 4-channel, DCF77 connection	▶	5WG1 372-5EY02		1	1	030	0.464
5WG1 372-5EY01								

¹⁾ The software required for parameter assignment over the Ethernet interface is available on CD-ROM and is included in delivery.

²⁾ During configuration, the installation engineer needs to carry out all the necessary settings.

³⁾ The AP 390 DCF-77 aerial must be ordered separately.

Control and Automation Devices

Time switches and accessories

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
 5WG1 373-5EY01	REG 373		REG 373 year time switches 16-channel, DCF77 connection ¹⁾	► 5WG1 373-5EY01	1	1	030	0.481
	Accessories							
		B	PC programming sets With OBELISK memory card	► 5WG1 810-0EY01	1	1	030	0.431
		B	OBELISK 4K EEPROM memory modules	► 5WG1 810-8EY01	1	1	030	0.023
		B	OBELISK 64K EEPROM memory modules	► 5WG1 810-8EY02	1	1	030	0.021
 5WG1 390-3EY01	AP 390	►	AP 390 DCF-77 aerials	5WG1 390-3EY01	1	1	030	0.169

¹⁾ During configuration, the installation engineer needs to carry out all the necessary settings.

Control and Automation Devices

Programmable logic controllers

Technical specifications

Type	Basic modules		Expansion modules				
							
	LOGO! 230RC	LOGO! 12/24RC	LOGO!DM8 230R	LOGO! DM8 12/24R	LOGO! AM2	LOGO! AM2 Pt100	LOGO! AM2 AQ
Enclosure data							
Can be used for LOGO! 230RC	--	--	✓	--	✓	✓	✓
Can be used for LOGO! 12/24RC	--	--	--	✓	✓	✓	✓
Modular installation devices for mounting on TH 35 EN 60715 mounting rail	✓	✓	✓	✓	✓	✓	✓
Dimensions							
• Height	mm	4 MW	4 MW	2 MW	2 MW	2 MW	36
• Width	mm						2 MW
• Depth	mm						55
Power supply							
Power supply 115 ... 230 V AC/DC	✓	--	✓	--	--	--	--
Power supply 12 ... 24 V DC	--	✓	--	✓	✓	✓	✓
Inputs							
Pushbutton inputs							
For voltage input (with common ground (N) or (-))							
• 230 V	8	--	4	--	--	--	--
• 12/24 V	--	8	--	4	--	--	--
Control inputs							
Analog inputs (0 ... 10 V or 0 ... 20 mA)	--	--	--	--	2	--	--
Sensor inputs							
PT100 temperature sensor input	--	--	--	--	--	2	--
Measuring range	°C	--	--	--	--	-50 ... +200	--
Outputs							
Control outputs							
Analog output (0 ... 10 V)	--	--	--	--	--	--	2
Load output							
Floating relay contact	4	4	4	4	--	--	--
Rated contact voltage, AC	V	230	230	230	--	--	--
Rated contact current	A	10	10	5	5	--	--

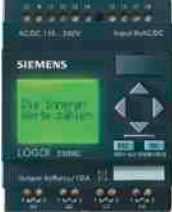
For weather sensors, see chapter "Physical Sensors".

Type	Description
	LOGO!/KNX communication modules - For connection of LOGO! to KNX, as slave module for the LOGO! logic module (12 V/24 V or 115 V/240 V) and as bus device on KNX - For linking transmitted KNX data points and LOGO! inputs and outputs over logic and timer functions through LOGO! - For the linking and transmitting over KNX of up to 8 binary inputs and 4 binary outputs of LOGO! 16 virtual KNX binary inputs 12 virtual KNX binary outputs 8 virtual KNX analog inputs 2 virtual KNX analog outputs - Transmission of date and time of the LOGO! realtime clock over KNX - Two LEDs for the display of the communication status of LOGO! and KNX - Electronics powered over an external power supply unit for 24 V AC/DC, 25 mA - Integrated bus coupling units - Bus connection over screw terminals - Modular installation devices for mounting on TH35 EN 60715 mounting rail - Width: 2 MW (1 MW = 18 mm)
	LOGO! 230RC, LOGO! 12/24RC, LOGO!DM8 230R, LOGO! DM8 12/24R, LOGO! AM2, LOGO! AM2 Pt100, LOGO! AM2 AQ - Degree of protection IP20 - Interference suppression to limit class B - Certified to UL, CSA, FM, C-Tick - Standards: VDE 0631, IEC1131 - Approvals: CE, ABS, BV, DNV, GL, LRS, PRS - Ambient temperature 0 ... +55 °C
	LOGO! Power 12 V/1.9 A - Controlled power supply 12 V DC/1.9 A - Designed for use on single-phase AC systems - Nominal input voltage 100 - 240 V AC, long-range - Input voltage range 85 ... 264 V AC - Efficiency during operation at rated value typ. 80 % - Nominal output voltage 12 V DC, setting range 10.5 ... 16.1 V - Tolerance +/- 3 %, residual ripple < 200 mVss - Nominal output current 1.9 A - Ambient temperature -20 ... 55 °C - Safety class II, degree of protection IP20 - Electrical isolation SELV acc. to EN 60950 and EN 50178 - Interference suppression class B acc. to EN 55022 - Certified to CE, UL/cUL, FM - Ship building approval GL, ABS - Width: 3 MW (1 MW = 18 mm)
	LOGO! Power 24 V/1.3 A - Controlled power supply 24 V DC/1.3 A - Designed for use on single-phase AC systems - Nominal input voltage 100 ... 240 V AC, long-range - Input voltage range 85 ... 264 V AC - Efficiency during operation at rated value typ. 82 % - Nominal output voltage 24 V DC - Tolerance +/- 3 %, residual ripple < 200 mVss - Nominal output current 1.3 A - Ambient temperature -20 ... 55 °C - Safety class II, degree of protection IP20 - Electrical isolation SELV acc. to EN 60950 and EN 50178 - Interference suppression class B acc. to EN 55022 - Certified to CE, UL/cUL, FM - Ship building approval GL, ABS. - Width: 3 MW (1 MW = 18 mm)
	LOGO! Power PC cables For the transmission of programs from PC to LOGO! and vice versa, PC connection over serial interface (RS232 socket).
	LOGO! Soft Comfort 5.0 Convenient programming software available in several languages, drag & drop program creation, simulation, comprehensive program documentation, Windows 98SE or higher, Linux, MAC OSX.
	LOGO! memory cards For archiving, duplication, sending of switching programs and transfer of a new or modified program to LOGO!, with copy and password protection.
	LOGO! English manuals Detailed information on operation and application.
	LOGO! German manuals Detailed information on operation and application.

Control and Automation Devices

Programmable logic controllers

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
						Unit(s)	Unit(s)		
	230RC	LOGO! 230RC	A	6ED1 052-1FB00-0BA5		1	1	200	0.232
6ED1 052-1FB00-0BA5									
	12/24RC	LOGO! 12/24RC	A	6ED1 052-1MD00-0BA5		1	1	200	0.228
6ED1 052-1MD00-0BA5									
	DM8 230R	LOGO! DM8 230R	A	6ED1 055-1FB00-0BA1		1	1	200	0.159
6ED1 055-1FB00-0BA1									
	DM8 12/24R	LOGO! DM8 12/24R	A	6ED1 055-1MB00-0BA1		1	1	200	0.157
6ED1 055-1MB00-0BA1									
	AM2	LOGO! AM2	A	6ED1 055-1MA00-0BA0		1	1	200	0.119
6ED1 055-1MA00-0BA0									
	AM2 Pt100	LOGO! AM2 Pt100	A	6ED1 055-1MD00-0BA0		1	1	200	0.120
6ED1 055-1MD00-0BA0									

	Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
	AM2 AQ	LOGO! AM2 AQ	A	6ED1 055-1MM00-0BA0		1	1	200	0.120
6ED1 055-1MM00-0BA0									
		LOGO! Power 12 V/1.9 A	▶	6EP1 321-1SH02		1	1	401	0.170
		LOGO! Power 24 V/1.3 A	▶	6EP1 331-1SH02		1	1	401	0.170
6EP1 321-1SH02									
		LOGO!/KNX communication modules	B	6BK1700-0BA00-0AA1		1	1	475	0.107
6BK1700-0BA00-0AA1									
		LOGO! PC cables	A	6ED1 057-1AA00-0BA0		1	1	200	0.176
6ED1 057-1AA00-0BA0									
		LOGO! German manuals	A	6ED1 050-1AA00-0BE6		1	1	2A0	0.401
		LOGO! English manuals	A	6ED1 050-1AA00-0AE6		1	1	2A0	0.450
6ED1 050-1AA00-0BE6									
		LOGO! Soft Comfort 5.0	A	6ED1 058-0BA01-0YA0		1	1	2A0	0.099
		LOGO! memory cards	A	6ED1 056-5CA00-0BA0		1	1	200	0.004

Control and Automation Devices

Notes

13





14/2	Introduction
14/3	Bus coupling units and accessories
14/9	Power supply units
14/10	Reactors
14/11	Line couplers
14/14	Network gateways

Introduction

Overview

Devices		Application	Page
	Bus coupling units and accessories	The bus coupling unit connects the operator interfaces to the GAMMA <u>instabus</u> .	14/3
	Power supply units	The extra-low voltage required for the GAMMA <u>instabus</u> is provided over an integrated reactor.	14/9
	Reactors	For using the unchoked voltage of an KNX power supply unit for a further bus line.	14/10
	Line couplers	Ensuring fault-free communication between two bus lines.	14/11
	Network gateways	For connecting bus lines to other devices and PCs over fast data networks.	14/14

Technical specifications

								
	UP 114/02	UP 117/11	UP 110/03	UP 110/11	UP 116	UP 116/11	UP 116/21	UP 116/31
Enclosure data								
For installation in flush-mounting switch and socket boxes with $\varnothing = 60$ mm and depth = 60 mm	✓	✓	✓	✓	✓	✓	✓	✓
For mounting rockers from the DELTA product ranges	--	--	--	--	✓	✓	✓	✓
10-pole peripheral external interface (PEI) for plugging onto a bus terminal	✓	--	✓	✓	--	--	--	--
10-pole BTI socket connector (BTI - Bus Transceiver Interface) for plugging on a bus terminal	--	✓	--	--	--	--	--	--
Dimensions								
• Height	mm	71	71	71	71	71	71	71
• Width	mm	71	71	71	71	71	71	71
• Depth	mm	16	16	27	19/32	32	32	32
Mounting type								
Claw fixing	--	--	--	✓	✓	✓	✓	✓
Screw fixing	✓	✓	✓	✓	✓	✓	✓	✓
Display/control elements								
LED for status indication	--	--	--	--	✓	✓	✓	✓
LED for orientation light	--	--	--	--	✓	✓	✓	✓
Bus connection								
Integrated bus coupling units	✓	✓	✓	✓	✓	✓	✓	✓
Bus connection via bus terminal	✓	✓	✓	✓	✓	✓	✓	✓

For selection and ordering data, see page 14/4.

Type	Description
	Accessories
	Mounting brackets for UP 110/11 In order to use antitheft screws with bus terminals, such as pushbuttons, room temperature controllers etc., on UP 110/11 bus coupling units, 2 mounting brackets per bus coupling unit are required.
	UP 196 paint covers For the protection of already installed flush-mounting bus coupling units, DELTA bus coupling units or flush-mounting actuators with peripheral external interface (PEI) through to the mounting of bus terminals.

System Products

Bus coupling units and accessories

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
Unit(s)	Unit(s)							
	UP 114/02 bus coupling units Mounting depth 16 mm, with BCU2	▶	5WG1 114-2AB02		1	1	030	0.060
5WG1 114-2AB02								
	UP 117/11 Bus transceiver modules Plus Mounting depth 16 mm	▶	5WG1 117-2AB11		1	1	030	0.042
5WG1 117-2AB11								
	UP 110/03 bus coupling units Mounting depth 27 mm, with BCU1	▶	5WG1 110-2AB03		1	1	030	0.060
5WG1 110-2AB03								
	UP 110/11 bus coupling units¹⁾ Mounting depth 19 mm, with BCU1	▶	5WG1 110-2AB11		1	1	030	0.066
5WG1 110-2AB11								
Accessories								
	Mounting brackets for UP 110/11	B	5WG1 294-8AB01		1	10	030	0.008
5WG1 294-8AB01								
	UP 196 paint covers	B	5WG1 196-2AB01		1	10	030	0.003
5WG1 196-2AB01								

¹⁾ The 5WG1 294-8AB01 mounting brackets for using the antitheft screws of bus terminals, must be ordered separately.

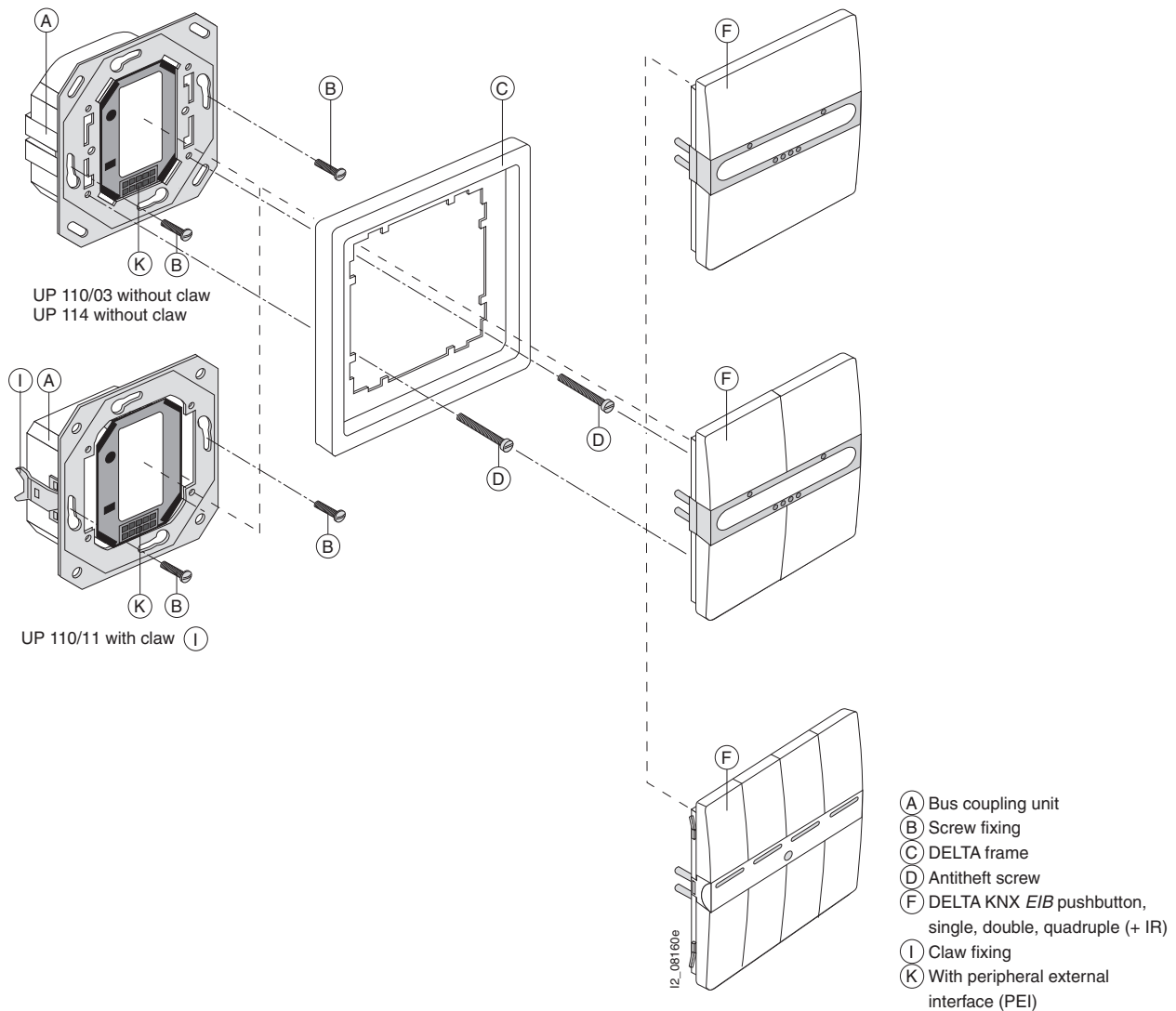
Bus coupling units and accessories

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
DELTA bus coupling units					Unit(s)	Unit(s)		
	UP 116 DELTA UP 116 bus coupling units¹⁾ Single							
			• Intermediate position	▶ 5WG1 116-2AB01	1	1	030	0.080
			• Pushbutton position	▶ 5WG1 116-2AB21	1	1	030	0.080
5WG1 116-2AB01								
	UP 116 DELTA UP 116 bus coupling units¹⁾ Double							
			• Intermediate position	▶ 5WG1 116-2AB11	1	1	030	0.080
			• Pushbutton position	▶ 5WG1 116-2AB31	1	1	030	0.080
5WG1 116-2AB11								

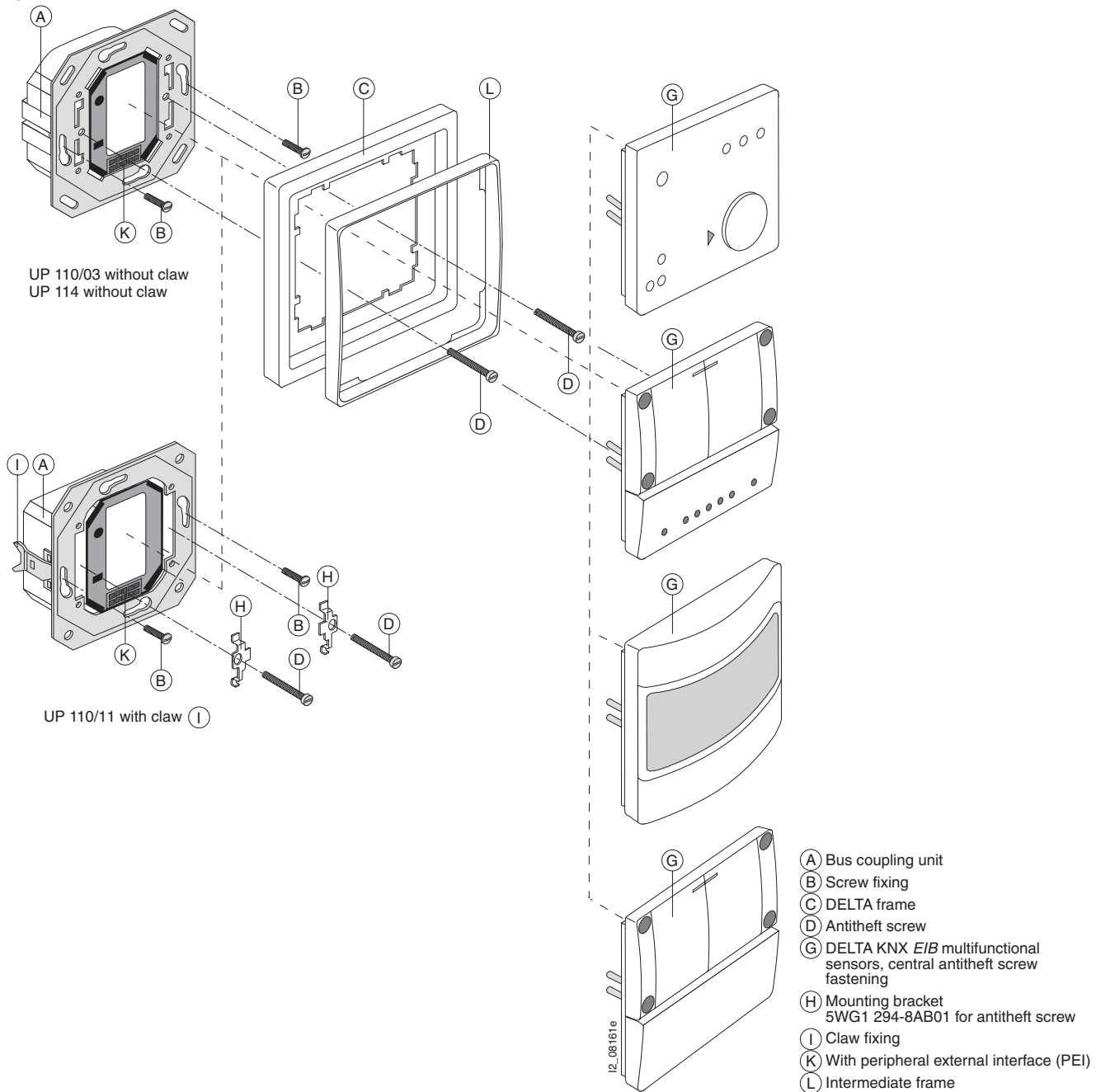
¹⁾ The required single or multiple rocker (with or without window) and the frame in matching DELTA design (see Catalog ET D1) must be ordered separately.

Bus coupling units and accessories

Operator interfaces without intermediate frame

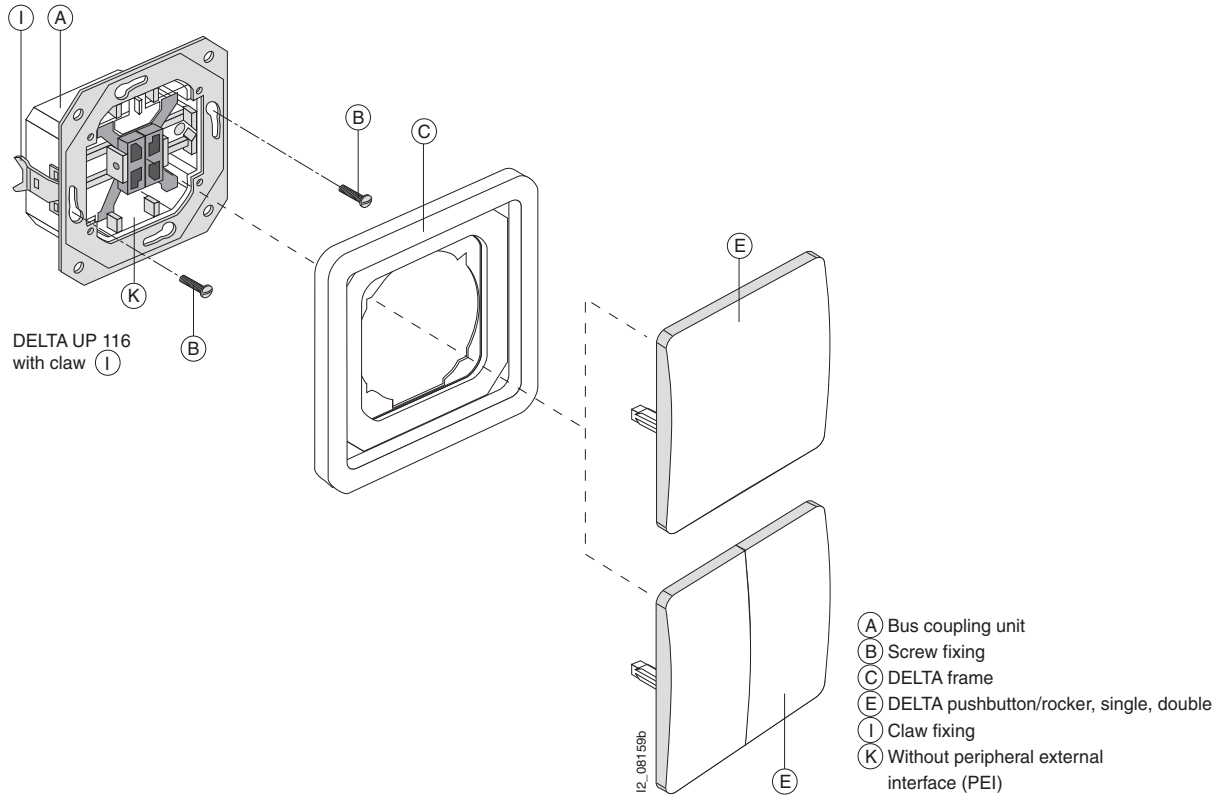


Operator interfaces with intermediate frame



Bus coupling units and accessories

Operator interfaces with DELTA bus coupling unit



Technical specifications

				
		N 125	N 125/11	N 125/21
Enclosure data				
Modular installation devices for mounting on TH35 EN 60715 mounting rail		✓	✓	✓
Dimensions				
• Width (1 MW = 18 mm)	mm	4 MW	4 MW	4 MW
Bus connection				
Integrated reactors		✓	✓	✓
Bus connection over contact system to data rail		✓	✓	✓
Bus connection via bus terminal		✓	✓	✓
Outputs				
Rated operational voltage, AC	V	120 ... 230	120 ... 230	120 ... 230
Output voltage, DC	V	29	29	29
Output current	mA	160	320	640
Additional unchoked output for 29 V DC, for powering a second bus line over an external reactor		--	--	✓

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
						Unit(s)	Unit(s)		
	N 125	N 125 power supply units Integrated reactors, 160 mA	▶	5WG1 125-1AB01		1	1	030	0.240
5WG1 125-1AB01									
	N 125/11	N 125/11 power supply units Integrated reactors, 320 mA	▶	5WG1 125-1AB11		1	1	030	0.230
5WG1 125-1AB11									
	N 125/21	N 125/21 power supply units Integrated reactors, 640 mA, additional unchoked output, 29 V DC	▶	5WG1 125-1AB21		1	1	030	0.240
5WG1 125-1AB21									

System Products

Reactors

Technical specifications

Type	Description
 N 120/02	N 120/02 reactors¹⁾ - For operation with an KNX power supply unit without integrated reactor (e.g. N 123) or for connection to the unchoked output of the KNX N 125/21 power supply unit, 640 mA - Contact system for data rail - Low-voltage terminal for unchoked voltage and bus - Modular installation devices for mounting on TH35 EN 60715 mounting rail - Width: 2 MW (1 MW = 18 mm)

¹⁾ The reactor prevents the data telegrams from short-circuiting through a bus power supply without integrated reactor.

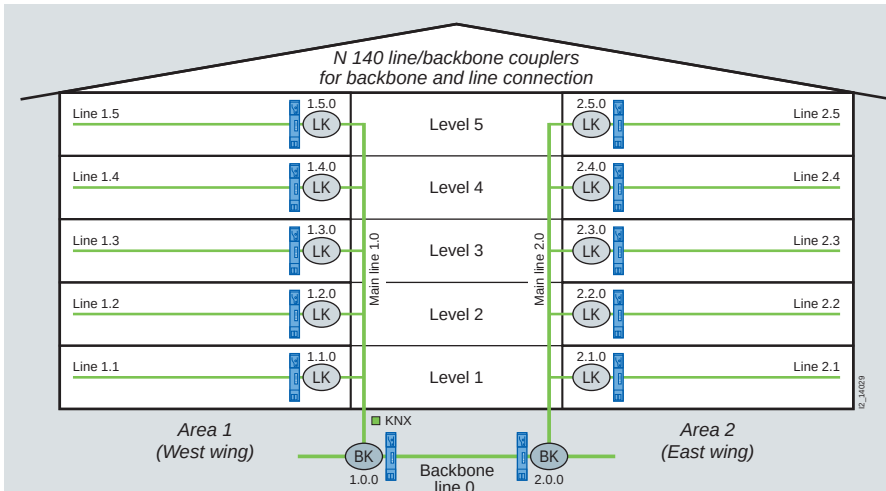
Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	N 120/02	N 120/02 reactors		5WG1 120-1AB02	1	1	030	0.105
		640 mA						

5WG1 120-1AB02

Overview

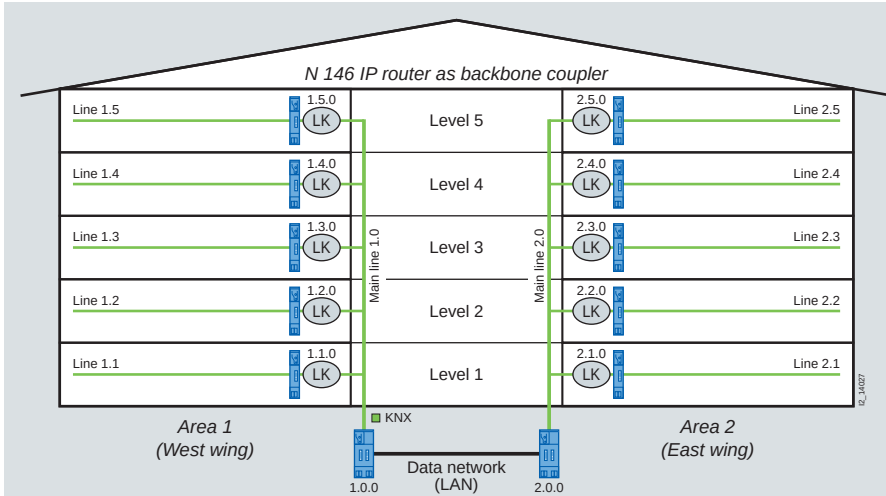
Classic topology



In the classic topology, all the line and backbone couplers are traditionally KNX couplers.

This topology is tried and tested and is widely deployed. The bus cable lengths are generally limited to a single building.

Modern topology

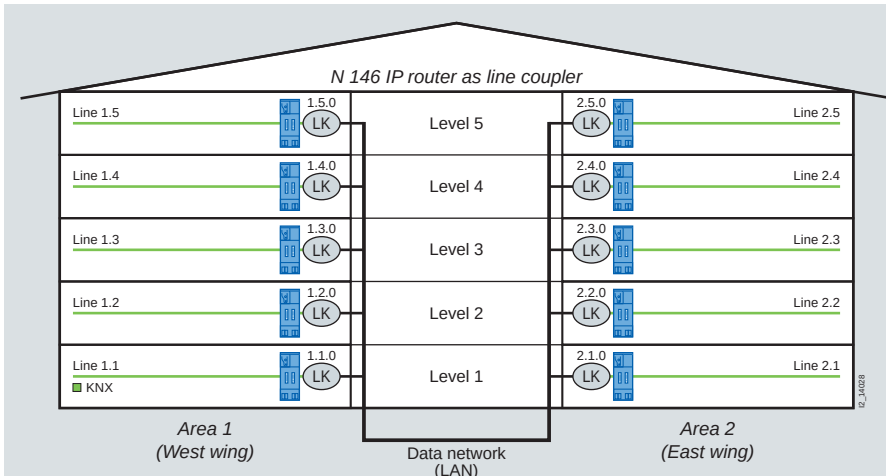


In this modern topology, the backbone couplers are replaced by N 146 IP routers.

In this case (for example), due to the use of standard network components, the linking of 2 building sections is no longer restricted by the lengths of the bus cable.

Other media, such as optical fiber cables or W-LAN, can also be used to couple separate building and for the exchange of group address telegrams.

Innovative topology



In this innovative topology all line couplers are replaced by N 146 IP routers.

Backbone couplers are no longer required. This configuration enables the linking of each individual building level over Ethernet (LAN) and through the utilization of existing LAN networks.

Furthermore, the correct configuration of the N 146 IP router makes the commissioning of both large projects and smaller individual projects quicker and easier to manage.

An exchange of group address telegrams is still possible even if projects are broken down into individual projects, [see chapter "Application Examples"](#).

Line couplers

Technical specifications

Type	Description
	N 140/03, N 140/13 line/backbone couplers¹⁾ - For data exchange between two KNX bus lines with telegrams of up to 64 byte - For use as line coupler for connecting a line to the main line or as backbone coupler for connecting a main line to the backbone line or as repeater for connecting two segments of the same line, with electrical isolation of the two bus lines - Loadable filter table for control of the data exchange between the two bus lines - Additional loadable filter table for telegrams with LTE addressing - Detection of a communication fault on the lower-level line and signaling to the higher-level line 3 LEDs for display of availability and receipt of a telegram per line - Power supply from the main line - Modular installation devices for mounting on TH35 EN 60715 mounting rail N 140/03 line/backbone couplers - With bus connection to the line via contact system for data rail and to the main line via bus terminal - Width: 1 MW (1 MW = 18 mm) N 140/13 line/backbone couplers - Bus connection to the line and to the main line via bus terminal - Width: 2 MW (1 MW = 18 mm)
	N 146 IP routers²⁾³⁾ - For data exchange between two KNX bus lines with telegrams of up to 64 byte - For interconnection of bus lines or bus areas over a fast data network (Ethernet 10BaseT) with Internet protocol (IP) - Can be used as line, area or network gateway (worlds gateway) - Loadable filter table for control of the data exchange between the two bus lines - Additional loadable filter table for telegrams with LTE addressing - Detection of a communication fault on the lower-level line and signaling to the higher-level line - For communication between KNX devices and PCs and in conjunction with a LAN modem for remote access to an KNX installation - Uses the KNXnet/IP protocol - Assignment of the network parameters by the installation engineer using ETS or automatically by a DHCP service in the network 5 LEDs for indicating that the device is ready-to-run, KNX communication, IP communication - Electronics powered over an external power supply unit for 12 ... 30 V - Plug-in terminal block for the connection of an external power supply unit - Integrated bus coupling units - Bus connection via bus terminal - Ethernet connection over RJ45 socket - Modular installation devices for mounting on TH35 EN 60715 mounting rail - Width: 2 MW (1 MW = 18 mm)

¹⁾ As far as the hardware is concerned, there is no difference between line coupler, backbone coupler or repeater. They therefore have the same order number. The function of the device is set during commissioning with the ETS.

²⁾ During configuration of the IP interface, the installation engineer should carry out all the necessary settings; the network parameters can be assigned either by the installation engineer over the ETS or automatically by a DHCP service in the network.

³⁾ The N 146 IP router can only function smoothly as a line coupler (KNXnet/IP routing) if it is equipped with network components that support IP multicasting. In particular, network/LAN routers must support or be configured so that they can relay IP multicast datagrams. The IP multicast address 224.0.23.12 is reserved internationally for KNXnet/IP routing.

For selection and ordering data, see page 14/13.

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
	N 140/03	N 140/03 line/backbone couplers	▶ 5WG1 140-1AB03		1	1	030	0.060
5WG1 140-1AB03								
	N 140/13	N 140/13 line/backbone couplers	▶ 5WG1 140-1AB13		1	1	030	0.085
5WG1 140-1AB13								
	N 146	N 146 IP routers	▶ 5WG1 146-1AB01		1	1	030	0.126
5WG1 146-1AB01								

Network gateways

Technical specifications

				
Type	N 146	N 148/21	N 350E	N 151
Enclosure data				
Design	N	N	N	N
Modular installation devices for mounting on TH35 EN 60715 mounting rail	✓	✓	✓	✓
Width (1 MW = 18 mm)	2 MW	2 MW	4 MW	4 MW
Display/control elements				
LEDs for indicating that the device is ready-to-run, KNX communication, IP communication	✓	✓	✓	✓
LCD	--	--	✓	--
Power supply				
Electronics powered over an external AC/DC power supply unit	V	12 ... 30	12 ... 30	12 ... 30
Bus connection				
Integrated bus coupling units	✓	✓	✓	✓
Bus connection via bus terminal	✓	✓	✓	✓
Mains connection				
Ethernet connection over RJ45 socket	✓	✓	✓	✓
Plug-in terminal block for the connection of an external power supply unit	✓	✓	✓	--
Gateway				
Uses the KNXnet/IP protocol	✓	✓	✓	✓
Line coupler function	✓	--	--	--
Interface for visualization	✓	✓	✓	✓

For selection and ordering data, see page 14/15.

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU Unit(s)	PS*/ P. unit Unit(s)	PG	Weight per PU approx. kg
	N 148/21	N 148/21 IP interfaces	UL ▶	5WG1 148-1AB21		1	1	030	0.126
5WG1 148-1AB21									
	N 146	N 146 IP routers	▶	5WG1 146-1AB01		1	1	030	0.126
5WG1 146-1AB01									
	N 350E	N 350E IP controllers¹⁾ 30 logic gates, 200 event entries, weekly scheduling program, integrated IP interface	▶	5WG1 350-1EB01		1	1	030	0.184
5WG1 350-1EB01									
	N 151	N 151 IP viewers	A	5WG1 151-1AB01		1	1	030	0.150
5WG1 151-1AB01									

¹⁾ The software required for parameter assignment over the Ethernet interface is available on CD-ROM and is included in delivery.

Notes

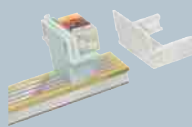
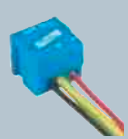


15/2	Introduction
15/3	Cover strips
15/3	Bus terminals
15/4	Connectors
15/5	Data rails
15/6	Overvoltage protection

System Accessories

Introduction

Overview

Devices		Application	Page
	Cover strips	For snapping onto free data rail segments - for enhanced safety.	15/3
	Bus terminals	The bus terminal connects bus devices to the bus cable and enables the looping through of cables.	15/3
	Connectors	Connects data rail and bus cable.	15/4
	Data rails	For connecting modular installation devices over their contact system.	15/5
	Overvoltage protection	For the overvoltage fine protection of bus devices.	15/6

Cover strips

Technical specifications

Type	Description
 192	192 cover strips For standard mounting rails - For covering free data rail segments (in accordance with the SELV regulations for safety extra-low voltage) - For snapping onto standard mounting rails, separable, RAL 7035 - Length: 13.5 MW (1 MW = 18 mm)

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	192		192 cover strips					
		X	5WG1 192-8AA01		1	5	030	0.014
For standard mounting rails, length 242 mm								
5WG1 192-8AA01								

Bus terminals

Technical specifications

Type	Description
 193	193 bus terminals - For connection of bus devices to the bus cable - For connection of up to 4 bus cables - Comprising two engaged clamp parts + (red) and - (dark gray), each with 4 screwless plug-in terminals per clamp part for solid conductors, Ø 0.6 mm ... 0.8 mm - Dimensions (H x W x D): 12.4 x 10 x 10 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	193		193 bus terminals					
		►	5WG1 193-8AB01		1	25	030	0.002
2-pole, 4 plug-in connections, red/dark gray								
5WG1 193-8AB01								

System Accessories

Connectors

Technical specifications

Type	Description
 REG 191/01	REG 191/01 connectors Double Flat connectors for fitting beneath distribution board covers. For connection of data rail and bus cable. Up to eight bus cables can be connected over two 193 bus terminals (must be ordered separately). Width: 1 MW (1 MW = 18 mm).
 REG 191/11	REG 191/11 connectors 2 × double Same as REG 191/01 connector, but with two additional connections for two low-voltage terminals (must be ordered separately). This allows the unchoked voltage to be taken from the data rail.

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	REG 191/01	REG 191/01 connectors (to be discontinued) 	5WG1 191-5AB01		1	1	030	0.045
		Double						
	REG 191/11	REG 191/11 connectors (to be discontinued) 	5WG1 191-5AB11		1	1	030	0.045
		2 × double						

5WG1 191-5AB01

Technical specifications

Type	Description
 190/_1	190/_1 data rails Without connector for TH 35-7.5 standard mounting rail, flat - For sticking (self-adhesive) in an EN 60715, TH35-7.5 flat standard mounting rail - For interconnecting modular installation devices over their contact system
 190/_2	190/_2 data rails With connector for TH 35-7.5 standard mounting rail, flat - For sticking (self-adhesive) in an EN 60715, TH35-7.5 flat standard mounting rail 2 bus terminals (red/dark gray) for bus voltage 2 low-voltage terminals (white/yellow) for unchoked voltage - For interconnecting modular installation devices over their contact system - For connecting data rails to each other and to a bus cable
 190/_3	190/_3 data rails Without connector for TH 35-15 standard mounting rail, deep - For sticking (self-adhesive) in an EN 60715, TH35-15 standard mounting rail, deep, mounting rail size 24 mm - For interconnecting modular installation devices over their contact system
 190/_4	190/_4 data rails With connector for TH 35-15 standard mounting rail, deep - For sticking (self-adhesive) in an EN 60715, TH35-15 standard mounting rail, deep, mounting rail size 24 mm 2 bus terminals (red/dark gray) for bus voltage 2 low-voltage terminals (white/yellow) for unchoked voltage - For interconnecting modular installation devices over their contact system - For connecting data rails to each other and to a bus cable

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
Data rails for TH35-7.5 standard mounting rails								
	190/_1	190/_1 data rails Without connector for TH 35-7.5 standard mounting rail, flat						
			▶ Length: 214 mm (for max. 12 MW)	5WG1 190-8AB01	1	5	030	0.017
			▶ Length: 243 mm (for max. 14 MW)	5WG1 190-8AB11	1	5	030	0.020
			▶ Length: 277 mm (for max. 16 MW)	5WG1 190-8AB21	1	5	030	0.023
			▶ Length: 324 mm (for max. 18 MW)	5WG1 190-8AB31	1	5	030	0.026
			▶ Length: 428 mm (for max. 24 MW)	5WG1 190-8AB41	1	5	030	0.032
	190/_2	190/_2 data rails With connector for TH 35-7.5 standard mounting rail, flat						
			▶ Length: 214 mm (for max. 12 MW)	5WG1 190-8AB02	1	5	030	0.193
			▶ Length: 243 mm (for max. 14 MW)	5WG1 190-8AB12	1	5	030	0.205
			▶ Length: 277 mm (for max. 16 MW)	5WG1 190-8AB22	1	5	030	0.050
			▶ Length: 324 mm (for max. 18 MW)	5WG1 190-8AB32	1	5	030	0.050
			▶ Length: 428 mm (for max. 24 MW)	5WG1 190-8AB42	1	5	030	0.050
	190/_3	190/_3 data rails Without connector for TH 35-15 standard mounting rail, deep						
			▶ Length: 214 mm (for max. 12 MW)	5WG1 190-8AB03	1	5	030	0.027
			▶ Length: 243 mm (for max. 14 MW)	5WG1 190-8AB13	1	5	030	0.032
			▶ Length: 277 mm (for max. 16 MW)	5WG1 190-8AB23	1	5	030	0.025
			▶ Length: 324 mm (for max. 18 MW)	5WG1 190-8AB33	1	5	030	0.037
			▶ Length: 428 mm (for max. 24 MW)	5WG1 190-8AB43	1	5	030	0.048
	190/_4	190/_4 data rails With connector for TH 35-15 standard mounting rail, deep						
			▶ Length: 214 mm (for max. 12 MW)	5WG1 190-8AB04	1	5	030	0.330
			▶ Length: 243 mm (for max. 14 MW)	5WG1 190-8AB14	1	5	030	0.360
			▶ Length: 277 mm (for max. 16 MW)	5WG1 190-8AB24	1	5	030	0.395
			▶ Length: 324 mm (for max. 18 MW)	5WG1 190-8AB34	1	5	030	0.490
			▶ Length: 428 mm (for max. 24 MW)	5WG1 190-8AB44	1	5	030	0.585
	190/_4	190/_4 data rails With connector for TH 35-15 standard mounting rail, deep	▶ Length: 464 mm (for max. 26 MW)	5WG1 190-8AB54	1	5	030	0.620

* You can order this quantity or a multiple thereof.

System Accessories

Overvoltage protection

Technical specifications

Type	Description
 190	190 overvoltage protection, fine protection for bus devices • For the overvoltage fine protection of bus devices • For inserting in a bus device instead of a 193 bus terminal or for direct connection to a bus terminal • For surge protection through connection of the yellow/green ground conductor to the next grounding point • 2 socket contacts (1 mm Ø) for insertion in bus devices • 2 solid wires (0.8 mm Ø) for connection to the bus terminal • 1 solid wire (0.75 mm²) for surge protection • Rated voltage 24 V DC • Rated current 6 A • Rated discharge surge current 5 kA • Protection level 350 V • Dimensions (H x W x D): 10.5 x 11.6 x 11.1 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
 5WG1 190-8AD01	190 190 overvoltage protection Fine protection for bus devices	B	5WG1 190-8AD01		1	1	030	0.010



16/2	Introduction
16/3	Operating hours/pulse counters
16/4	Counters for electrical energy

Introduction

Overview

Devices		Application	Page
	Operating hours/ pulse counters	This counter can be used to measure binary switching information and monitor limit values.	16/3
	Counters for electrical energy	Overview of electrical energy consumption at a glance.	16/4

Operating hours/pulse counters

Technical specifications

Type	Description
 N 343	N 343 operating hours and switching operations counters - Recording of operating hours and counting of switching operations for up to 36 sensor/actuator channels with 1-bit switching objects - Limit values for all count values - Indication output over the bus if the current value exceeds or falls below these limits, with option for monitoring the switching telegrams for all configured channels or cyclic interrogation of the states - To-the-second precision recording of operating hours of a channel through evaluation of the ON period - Incrementation of the switching operations counter when switching from OFF to ON - Option for querying all counting and limit values during runtime and setting each to a new user-definable value - Recording of operating hours with a maximum runtime of approx. 136 years - Counts a maximum of 4.3 billion switching operations per channel - Electronics powered over bus voltage - Integrated bus coupling units - Bus connection over contact system to data rail - Modular installation devices for mounting on TH35 EN 60715 mounting rail - Width: 1 MW (1 MW = 18 mm)

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	N 343 N 343 operating hours and switching operations counters 36 channels	B 	5WG1 343-1AB01		1	1	030	0.092

5WG1 343-1AB01

Counters

Counters for electrical energy

Technical specifications

Type	Description
 N 162 N 165	N 162, N 165 E-counters - For measuring the import of electrical energy in kWh in 1- and 3-phase systems - PTB calibrated - Accuracy class 2 - Short-circuit resistant S0 pulse output 3-/4 conductor connection - LCD for display of active energy, price per kWh, total costs, reactive energy, current active power (total per phase), device number - Manual readout over the built-in LCD - Readout of data via IR data interface - Reading/sending of data over the bus - Screw terminals for connection of L1, L2, L3, N and S0 pulse output - Electronics powered over an integrated power supply unit for 230/400 V AC - Integrated bus coupling units - Bus connection via bus terminal - Modular installation devices for mounting on TH35 EN 60715 mounting rail - Width: 6 MW (1 MW = 18 mm)

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	N 162	N 162 E-counters	B	7KT1 162	1	1	027	0.450
		With direct connection to 230 V AC up to 63 A						
	N 165	N 165 E-counters	B	7KT1 165	1	1	027	0.390
		With transformer connection 5(6) A						

7KT1 162



17/2	Introduction
	Display, Operation
17/6	Introduction
17/7	Pushbuttons
17/10	Pushbutton accessories
17/11	Remote controls
	Output Devices
17/12	Introduction
17/13	Binary output devices
17/15	Socket outlet switches
	Input Devices
17/16	Binary input devices
	Devices for Special Applications
17/17	Introduction
17/18	Lighting
17/19	Sun protection, anti-glare protection, utilization of daylight
17/21	Safety
	Gateways, Interface Converters
17/23	Introduction
17/24	KNX/KNX radio
17/25	EnOcean/KNX radio
	System Products
17/26	Introduction
17/27	Transmitters, receivers
17/29	Repeaters

GAMMA wave Radio System

Introduction

Overview

Devices		Application	Page
	Display, operation	Here you can find all you need to know about the display and operator devices of GAMMA wave.	17/6
	Output devices	Whether binary output devices or socket outlet switches, this section covers every aspect of output devices.	17/12
	Input devices	Electrical operating states are recorded and any changes transmitted over bus.	17/16
	Devices for special applications	Whether for lighting, safety or sun/anti-glare protection, here you will find everything you need.	17/17
	Gateways, interface converters	Gateways ensure communication within the system, as well as with other systems.	17/23
	System products	Transmitters, receivers and repeaters round off the GAMMA wave system.	17/26

GAMMA wave and Synco living in combination

1 The Synco living central apartment unit

Heart and brain of the system. This unit offers simple control and monitoring of the functions of up to 12 rooms on a single display.



2 The Synco living room unit

Measures room temperature and allows settings entered in the central apartment unit, such as temperature and operating parameters, to be adjusted for individual rooms. The comfort mode can be extended by a simple push of the button.



3 The Synco living heater control actuator

Measures room temperature - wirelessly receives the preset temperature for the respective room from the central apartment unit and regulates the room temperature by adjusting the heater valve. It can also regulate up to 5 further heaters per room, thus ensuring an even temperature between the radiators.



4 The Synco living room temperature sensor

Measures the room temperature and wirelessly communicates this to the central apartment unit.



5 The Synco living heating circuit controller

Compares the actual and set values wirelessly transmitted by the central apartment unit and regulates the required temperature by adjusting the valve settings. Two heating circuit controllers are available for either 2 or 8 heating circuits.



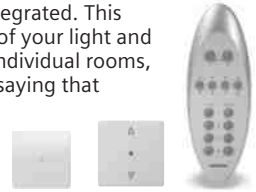
6 DELTA reflex smoke detector

Immediately detects the smoke emitted by fires and signals the alarm. Wirelessly transmits the alarm to the Synco living central apartment unit. The central apartment unit can then transmit the alarm to one or more recipients via SMS, pager or email.



7 The GAMMA wave radio integration system for light and blinds

All GAMMA wave products can be integrated. This allows quick and convenient control of your light and blinds, either centrally, locally from individual rooms, or as a preset scene. It goes without saying that GAMMA wave components can also be automated e.g. via switching programs or using your simulated presence settings.



8 The GAMMA wave door/window contact

Monitors windows, doors and gates, etc. and transmits relevant data to the central apartment unit, e.g. if an oil tank is running low. In the event of any deviation from preset values you can program the system to signal you in a variety of ways. High comfort, low energy.



You will find more information on Synco living at: <http://www.siemens.com/syncoliving>



GAMMA wave Radio System

Introduction

GAMMA wave – the multifunctional system

Enjoy all the advantages of a modern building management system without the need for additional cable installation – the new GAMMA wave radio system makes it possible.

Sensors, actuators, etc. do not require any additional cable installation. This means that this type of radio transmission is particularly suitable for renovation work, the expansion of existing systems and all types of new installations. And all complete with absolutely failsafe and problem-free transmission.

Furthermore:

GAMMA wave is a unique bi-directional radio system – this means that the products and components can be both transmitter and receiver.

And:

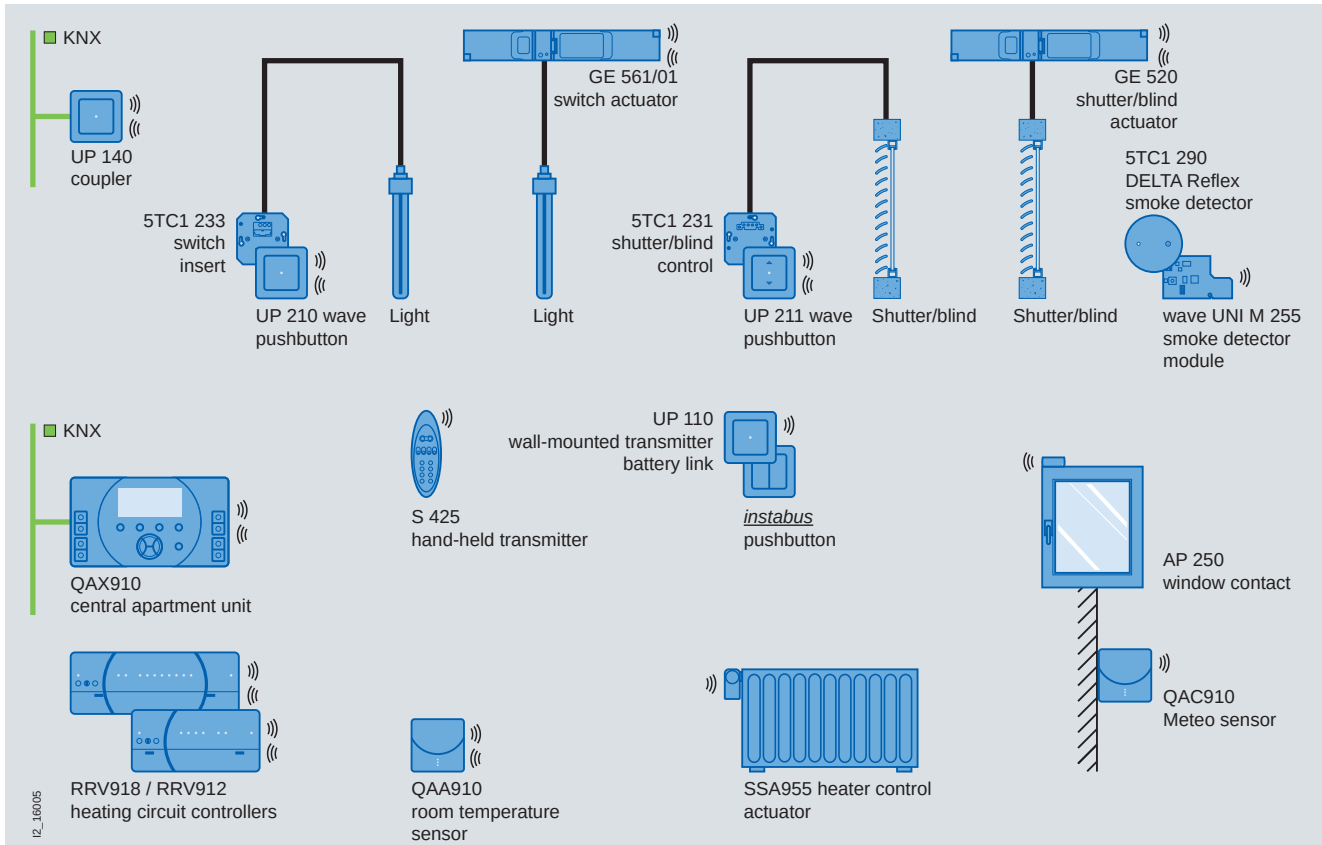
GAMMA wave is based on the new, uniform standard for building management systems; KNX in the 868 MHz range.

Services

Services offered through third parties.

Consumption data acquisition and emergency call systems

Products of other Siemens ranges or other manufacturers on the basis of KNX standards.



Due to its implementation of future-pointing technology, the "wave" device range is ideally suited for the retrofitting and modification of room control functions in existing buildings.

These products offer simple installation and commissioning, thus enabling the wireless remote control of switching, dimming and shutter/blind/scene functions.

The system operates in the 868 MHz fail-safe frequency band that is reserved for safety and system applications. A sensor can control an unlimited number of actuators within its range (e.g. closed residential unit).

As well as the wave pushbutton for lighting control, the product range includes the wave shutter/blind pushbuttons for shutter/blind control as well as a range of wall-mounted transmitters, hand-held transmitters, door/window contacts and smoke detectors.

The wave pushbuttons and wave shutter/blind pushbuttons must be used in combination with universal dimmer sys inserts, switch sys inserts or shutter/blind control sys inserts. This enables the local operation and remote control of the inserts located beneath the pushbuttons, as well as the remote control of additional universal dimmer, switch dimmer or shutter/blind control inserts linked over KNX radio.

Single or double *instabus* pushbuttons are snapped onto wave wall-mounted transmitters as operator interfaces. In accordance with their intended purpose, pushbutton rockers enable the remote control of universal dimmer sys inserts, switch sys inserts or shutter/blind control sys inserts, which are equipped with wave pushbuttons or wave shutter/blind pushbuttons.

The device contact units are fitted with fixing claws and have a maximum mounting depth of 32 mm. This greatly facilitates mounting standard flush-mounting switch boxes.

GAMMA wave flush-mounting combinations

Operator interfaces	sys pushbuttons ¹⁾	UP 210 wave pushbuttons	sys shutter/blind pushbuttons ¹⁾	UP 211 wave shutter/blind pushbuttons	instabus pushbuttons, single, double
Device inserts					
Universal dimmer sys inserts	✓	✓	--	--	--
sys switching inserts	--	✓	--	--	--
Shutter/blind control sys inserts	--	--	✓	✓	--
UP 110 wall-mounted transmitters	--	--	--	--	✓
"Batterie" wave	--	--	--	--	✓
UP 110 wall-mounted transmitters	--	--	--	--	✓
230 V wave	--	--	--	--	✓
UP 560 wall-mounted transmitters	--	--	--	--	✓
"Aktor" 230 V wave	--	--	--	--	✓

¹⁾ See Catalog ET D1.

Previously

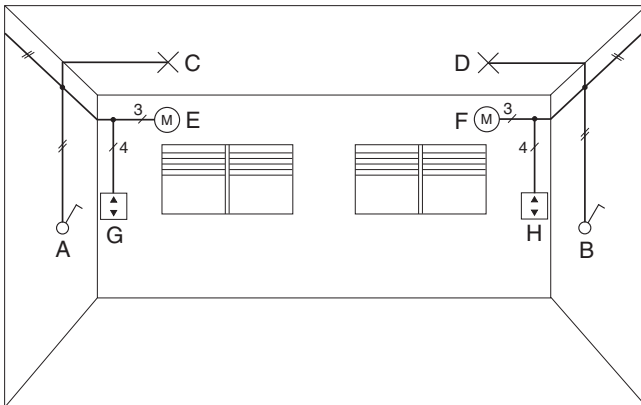
Lighting and shutter/blind control of a conventional installation

Example of a conventional installation with lighting and electrically operated shutters/blinds.

- Light (C) can only be switched with switch (A)
- Light (D) can only be switched with switch (B)
- Shutter/blind (E) can only be moved with switch (G)
- Shutter/blind (F) can only be moved with switch (H)

Disadvantages

- Inflexible
- No convenience (each light must be switched individually)



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After

Lighting and shutter/blind control with GAMMA wave ("bi-directional" radio system)

Modification of the installation for shared operation of lighting and shutters/blinds from various operating points.

Replacement of conventional switch inserts (A, B) with

- Universal dimmer sys inserts
- DELTA UP 210 wave pushbuttons

Replacement of conventional shutter/blind switches (G, H) with

- Shutter/blind control sys inserts
- DELTA UP 211 wave shutter/blind pushbutton

With this switch you can:

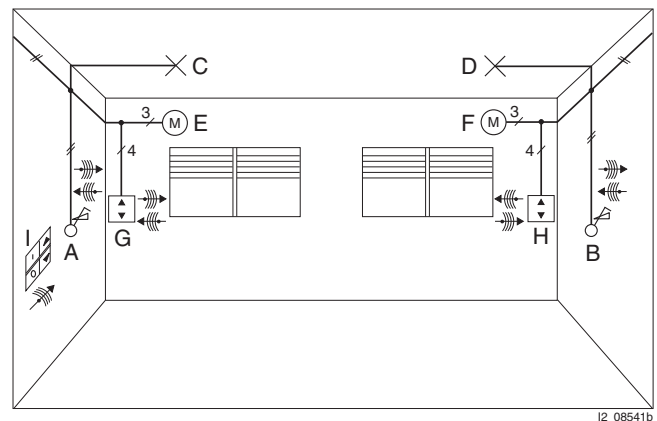
- Dim lights C and D from A and/or B
- Operate shutters/blinds E and F from G and/or H.

For additional operation of the lights and shutters/blinds

- A UP 110 wall-mounted transmitter "Batterie" wave (I) with mounted double instabus pushbutton must be installed.

Advantages

- Flexible
- Greater operational ease
- Supports group formation
- Few devices required/lower costs
- Simple and clean retrofitting - no structural alterations required



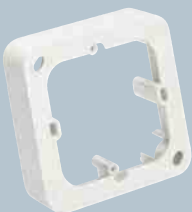
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GAMMA wave Radio System

Display, Operation

Introduction

Overview

Devices		Application	Page
	Pushbuttons	Radio control of lighting and shutters/blinds using the radio pushbuttons from the DELTA product ranges.	17/7
	Pushbutton accessories	Surface mounting enclosure or blanking cover plate – you choose.	17/10
	Remote controls	The wave hand-held transmitter supports wireless operation of up to 17 different room functions.	17/11

GAMMA wave Radio System

Display, Operation

Pushbuttons

Technical specifications

Type	Description
 UP 210	UP 210 wave pushbuttons - For local and remote operation of a sys switching insert or universal dimmer sys insert over KNX radio - Pushbutton rocker, single with intermediate position - Vertical operation - With switch over, switch over and dimming, with short and long button press for switching over and BRIGHTER/DARKER when dimming, with adjustable timer function with an overrun time of 1 ... 60 min 1 LED for indication of different operating modes - KNX radio transmitter/receiver for 868 MHz - Commissioning by pressing the pushbutton surface 10-pole plug for clipping onto a sys switching insert or universal dimmer sys insert
 UP 211	UP 211 wave shutter/blind pushbuttons - For local and remote operation of a shutter/blind control sys insert over KNX radio - Pushbutton rocker, single with intermediate position - Vertical operation - With short and long button press for shutter/blind control function for UP/DOWN and adjustment of slats 24-hour automatic operation for raising and lowering of shutters/blinds 1 LED for indication of different operating states - KNX radio transmitter/receiver for 868 MHz - Commissioning by pressing the pushbutton surface 10-pole plug for clipping onto a shutter/blind control sys insert.
 AP 221/ AP 222	EnOcean AP 221 / AP 222 wall-mounted transmitters - Flat pushbutton rocker, single or double with intermediate position and vertical operation - For direct remote control of EnOcean radio actuators and remote control of wave radio actuators and <i>instabus</i> actuators over gateways - Switch ON/OFF and over, with short and long button press for switching ON/OFF and BRIGHTER/DARKER when dimming - Short and long button press for UP/DOWN and adjustment of slats with the shutter/blind control function - Commissioning by pressing the pushbutton surface - Radio transmitter for 868 MHz, with battery-free EnOcean radio technology, with energy generation through maintenance-free, electrodynamic energy generator - Floor plate for easy sticking or screwing to surfaces

	i-system	DELTA profil	DELTA style	Design- independent
Dimensions				
• Height	mm 55	65	68	83
• Width	mm 55	65	68	83
• Depth	mm 13	14	16.5	15

GAMMA wave flush-mounting combinations

Operator interfaces	sys pushbuttons ¹⁾	UP 210 wave pushbuttons	sys shutter/blind pushbuttons ¹⁾	UP 211 wave shutter/ blind pushbuttons	<i>instabus</i> pushbuttons, single, double
Device inserts					
Universal dimmer sys inserts	✓	✓	--	--	--
sys switching inserts	--	✓	--	--	--
Shutter/blind control sys inserts	--	--	✓	✓	--
UP 110 wall-mounted transmitters	--	--	--	--	✓
"Batterie" wave	--	--	--	--	✓
UP 110 wall-mounted transmitters	--	--	--	--	✓
230 V wave	--	--	--	--	✓
UP 560 wall-mounted transmitters	--	--	--	--	✓
"Aktor" 230 V wave	--	--	--	--	✓

¹⁾ See Catalog ET D1.

GAMMA wave Radio System

Display, Operation

Pushbuttons

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg	
					Unit(s)	Unit(s)			
i-system									
	UP 210	UP 210 wave pushbuttons ¹⁾³⁾							
		• Titanium white • Carbon metallic • Aluminum metallic		▶	5WG3 210-2HB11	1	1	022	0.030
				B	5WG3 210-2HB21	1	1	022	0.030
				A	5WG3 210-2HB31	1	1	022	0.030
5WG3 210-2HB11									
	UP 211	UP 211 wave shutter/blind pushbuttons ²⁾³⁾							
		• Titanium white • Carbon metallic • Aluminum metallic		▶	5WG3 211-2HB11	1	1	022	0.035
				B	5WG3 211-2HB21	1	1	022	0.030
				A	5WG3 211-2HB31	1	1	022	0.030
5WG3 211-2HB11									
DELTA profil									
	UP 210	UP 210 wave pushbuttons ¹⁾³⁾							
		• Pearl gray • Titanium white • Anthracite • Silver		B	5WG3 210-2AB01	1	1	022	0.035
				▶	5WG3 210-2AB11	1	1	022	0.035
				B	5WG3 210-2AB21	1	1	022	0.035
5WG3 210-2AB11									
	UP 211	UP 211 wave shutter/blind pushbuttons ²⁾³⁾							
		• Pearl gray • Titanium white • Anthracite • Silver		B	5WG3 211-2AB01	1	1	022	0.035
				▶	5WG3 211-2AB11	1	1	022	0.035
				B	5WG3 211-2AB21	1	1	022	0.035
5WG3 211-2AB11									
DELTA style									
	UP 210	UP 210 wave pushbuttons ¹⁾³⁾							
		• Titanium white • Basalt black • Platinum metallic		▶	5WG3 210-2GB11	1	1	022	0.036
				B	5WG3 210-2GB21	1	1	022	0.036
				B	5WG3 210-2GB41	1	1	022	0.035
5WG3 210-2GB11									
	UP 211	UP 211 wave shutter/blind pushbuttons ²⁾³⁾							
		• Titanium white • Basalt black • Platinum metallic		A	5WG3 211-2GB11	1	1	022	0.035
				B	5WG3 211-2GB21	1	1	022	0.035
				B	5WG3 211-2GB41	1	1	022	0.035
5WG3 211-2GB11									

¹⁾ The sys switching insert and universal dimmer sys inserts must be ordered separately.

²⁾ The shutter/blind control sys inserts must be ordered separately.

³⁾ The matching design frame must be ordered separately.

GAMMA wave Radio System

Display, Operation

Pushbuttons

Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
Design-independent					Unit(s)	Unit(s)		
	AP 221	EnOcean AP 221 wall-mounted transmitters, single	▶	5WG3 221-3HB11	1	1	030	0.112
		Battery-free, flat, white						
5WG3 221-3HB11								
	AP 222	EnOcean AP 222 wall-mounted transmitters, double	▶	5WG3 222-3HB11	1	1	030	0.112
		Battery-free, flat, white						
5WG3 222-3HB11								

¹⁾ The gateway EnOcean/KNX, AP 631/62 switch actuators (5WG1 631-3AL62) or GE 561/11 switch actuators (5WG3 561-4AB11) must be ordered separately.

GAMMA wave Radio System

Display, Operation

Pushbutton accessories

Technical specifications

		Blanking cover plates				Surface-mounting enclosures
		i-system	DELTA profil	DELTA style	DELTA ambiente	DELTA profil
Dimensions						
• Height	mm	55	65	68	65	80
• Width	mm	55	65	68	65	80
• Depth	mm	--	--	--	--	30

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
i-system								
	Blanking cover plates							
	• Titanium white		►	5TG2 558	1	1/10	021	0.007
	• Carbon metallic		A	5TG1 220	1	1/10	021	0.049
	• Aluminum metallic		►	5TG1 250	1	1/10	021	0.049
5TG2 558								
DELTA profil								
	M 110	M 110 surface-mounting enclosures ¹⁾						
	Single, For surface mounting of UP 110 wall-mounted transmitters "Batterie" wave.							
	• Pearl gray		D	5WG3 110-8AB01	1	1	022	0.048
	• Titanium white		A	5WG3 110-8AB11	1	1	022	0.048
• Anthracite		D	5WG3 110-8AB21	1	1	022	0.048	
• Silver		D	5WG3 110-8AB71	1	1	022	0.048	
5WG3 110-8AB11								
	Blanking cover plates							
	• Titanium white		A	5TG1 810	1	1/10	021	0.041
	• Pearl gray		A	5TG1 870	1	1/10	021	0.041
	• Anthracite		A	5TG1 840	1	1/10	021	0.041
• Silver		A	5TG1 770	1	1/10	021	0.041	
5TG1 810								
DELTA style								
	Blanking cover plates							
	• Titanium white		►	5TG1 330	1	1/10	021	0.054
	• Basalt black		A	5TG1 370	1	1/10	021	0.054
5TG1 330								
DELTA ambiente								
	Blanking cover plates (to be discontinued)							
	• Arctic white		A	5TG1 510	1	1/5	021	0.056
5TG1 510								

5TG1 510

¹⁾ The matching cut-out frame must be ordered separately.

* You can order this quantity or a multiple thereof.

GAMMA wave Radio System

Display, Operation

Remote controls

Technical specifications

Type	Description
 S 425	S 425 wave hand-held radio transmitters • 4 preselection pushbuttons and 4 pushbutton pairs for wireless operation of 16 different room functions • Separate pushbutton pair for a central function (e.g. central ON/OFF) • Configurable function per pushbutton pair: switch, switch and dim, shutter/blind control, store and call up scenes • Radio transmitter: 868 MHz • Dimensions (H x W x D): 154 x 55 x 24 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
	S 425		S 425 wave hand-held radio transmitters¹⁾					
			17 channels					
			• Black	► 5WG3 425-7AB21	1	1	030	0.124
			• Silver	► 5WG3 425-7AB71	1	1	030	0.125

5WG3 425-7AB21

¹⁾ The 2 batteries of type LR03/AAA (1.5 V) required for operation are included in delivery.

GAMMA wave Radio System

Output Devices

Introduction

Overview

Devices		Application	Page
	Binary output devices	For ON/OFF switching of actuators over GAMMA wave.	17/13
	Socket outlet switches	For the wireless switching of devices that are plugged into a socket outlet.	17/15

GAMMA wave Radio System

Output Devices

Binary output devices

Technical specifications

Type	Description
	sys switching inserts Flush mounting - For the switching of incandescent lamps, HV and LV halogen lamps with electronic or conventional transformers, rated operational voltage 230 V AC 2-wire connection method - Short-circuit protection through miniature fuse with spare fuse - Secondary input for auxiliary operation over conventional pushbuttons 10-pole socket for plugging in a UP 210 wave pushbutton for the local and remote control over KNX radio - For mounting in an installation box (Ø 60 mm, depth: 40 mm) with screw or claw fixing - Dimensions (H x W x D): 71 x 71 x 32 mm
	UP 560 wall-mounted transmitters "Aktor" 230 V wave Flush mounting - For the wireless operation of up to 2 different room functions and for the control of actuators over KNX radio 10-pole plug-in connector for plugging in an <i>instabus</i> pushbutton, single or double, as operator interface - Adjustable function; switching, switching and dimming, shutter/blind control and scene control - Short and long button press for ON/OFF, BRIGHTER/DARKER for dimming or UP/DOWN and adjustment of slats for shutter/blind control - Storage and call up of up to four scenes - With integrated switch actuator with relay contact, rated for 230 V AC, 6 A (resistive load), with option for setting whether load should be permanently switched on or off (normal mode) or whether actuator should operate in timer mode with an adjustable ON period of 1, 5 or 15 minutes - KNX radio transmitter/receiver for 868 MHz - Electronics powered over 230 V AC - Commissioning over six DIL switches located on the front panel - no additional aids required - For mounting in an installation box (Ø 60 mm, depth: 40 mm) with screw or claw fixing - Dimensions (H x W x D): 71 x 71 x 32 mm
	GE 561/01 wave switch actuators 2 x 230 V AC, 16 A - KNX radio transmitter/receiver for 868 MHz - One relay contact per output - Contact rated operational voltage, 230 V AC - Rated current 16 A at p.f. = 1 - With option for setting whether load should be permanently switched ON or OFF (normal mode) or whether actuator should operate in timer mode with an adjustable ON period of 1 ... 60 minutes - Electronics powered over 230 V AC - Commissioning over a pushbutton located on the top - no additional aids required - Modular installation device - Dimensions (W x H x L): 42 x 32 x 274.5 mm
	GE 561/11 wave switch actuators 2 x 230 V AC, 16 A, with EnOcean receiver - KNX radio transmitter/receiver for 868 MHz - EnOcean radio receiver for 868 MHz - Converter of EnOcean radio to KNX radio for the control of KNX radio actuators over EnOcean radio pushbuttons - Control of internal actuator channels over KNX and/or EnOcean radio pushbuttons - One relay contact per output - Contact rated operational voltage, 230 V AC - Rated current 16 A at p.f. = 1 - With option for setting whether load should be permanently switched ON or OFF (normal mode) or whether actuator should operate in timer mode with an adjustable ON period of 1 ... 60 minutes - Electronics powered over 230 V AC - Commissioning over a pushbutton located on the top - no additional aids required - Modular installation device - Dimensions (W x H x L): 42 x 32 x 274.5 mm

GAMMA wave flush-mounting combinations

Operator interfaces	sys pushbuttons ¹⁾	UP 210 wave pushbuttons	sys shutter/blind pushbuttons ¹⁾	UP 211 wave shutter/blind pushbuttons	<i>instabus</i> pushbuttons, single, double
Device inserts					
Universal dimmer sys inserts	✓	✓	--	--	--
sys switching inserts	--	✓	--	--	--
Shutter/blind control sys inserts	--	--	✓	✓	--
UP 110 wall-mounted transmitters "Batterie" wave	--	--	--	--	✓
UP 110 wall-mounted transmitters 230 V wave	--	--	--	--	✓
UP 560 wall-mounted transmitters "Aktor" 230 V wave	--	--	--	--	✓

¹⁾ See Catalog ET D1.

GAMMA wave Radio System

Output Devices

Binary output devices

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
						Unit(s)	Unit(s)		
	sys switching inserts¹⁾²⁾								
	Flush mounting								
	- Rated operational power 25 ... 250 VA - Rated operational power 15 ... 500 VA (for toroidal core transformers 15 ... 250 VA)		A	5TC1 232		1	1	024	0.100
			A	5TC1 233		1	1	024	0.110
5TC1 232									
	UP 560	UP 560 wall-mounted transmitters "Aktor" 230 V wave¹⁾³⁾	►	5WG3 560-2AB01		1	1	030	0.074
		Flush mounting							
5WG3 560-2AB01									
	GE 561/01	GE 561/01 wave switch actuators	►	5WG3 561-4AB01		1	1	030	0.220
		2 x 230 V AC, 16 A							
5WG3 561-4AB01									
	GE 561/11	GE 561/11 wave switch actuators	►	5WG3 561-4AB11		1	1	030	0.220
		2 x 230 V AC, 16 A, with EnOcean receiver							
5WG3 561-4AB11									

¹⁾ The matching design frame must be ordered separately.

²⁾ The UP 210 wave pushbutton with KNX radio communication must be ordered separately.

³⁾ The instabus pushbuttons must be ordered separately.

* You can order this quantity or a multiple thereof.

GAMMA wave Radio System

Output Devices

Socket outlet switches

Technical specifications

Type	Description
 S 564	S 564 wave socket outlet switches • Intermediate connector for plugging into a protective contact socket outlet • Switchable SCHUKO socket outlet integrated in the intermediate connector • Integrated actuator for ON/OFF switching of SCHUKO socket outlet, relay contact rated for 230 V AC, 16 A (resistive load) • Can also be controlled over up to 10 KNX sensors and can be integrated into up to 16 KNX scenes • Pushbutton for local operation and commissioning – no additional aids required • LED to indicate the operation/switching state • KNX radio transmitter/receiver, 868 MHz • Powered over socket outlet • Titanium white • Dimensions (H x W x D): 128 x 72 x 74 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
					Unit(s)	Unit(s)		
 S 564	S 564 wave socket outlet switches Intermediate connectors	A	5WG3 564-7AB11		1	1	030	0.245

5WG3 564-7AB11

GAMMA wave Radio System

Input Devices

Binary input devices

Technical specifications

Type	Description
 AP 261	AP 261 wave binary inputs With battery - For detecting the state of an external contact connected to the sensor and transmission of the state as ON/OFF information to an actuator with KNX radio communication - Additional reed contact integrated in the device, activated through the magnet included in delivery, and electrically connected in series to the external contact 4 plug-in terminals for wire cross-sections of 0.14 ... 0.5 mm² (solid or finely stranded) for connection of the external contact and for setting through a wire jumper, whether monitoring is to cover internal contact only, external contact only, or both contacts - KNX radio transmitter for 868 MHz - Electronics powered over a lithium battery (1/2 AA 3.6 V), with a battery service life of approx. 5 years, with signaling of battery status every 24 hours, with LED that flashes every 10 seconds to indicate that the battery needs replacing - Commissioning over a pushbutton located on the front of the sensor – no additional aids required - Surface mounting - Comprising one mounting plate for screw or adhesive fastening, clip-on radio sensor with integrated reed contact and trigger magnet - Titanium white - Dimensions (H x W x D): Sensor 87 x 36 x 27 mm, magnet 40 x 10 x 10 mm

Selection and ordering data

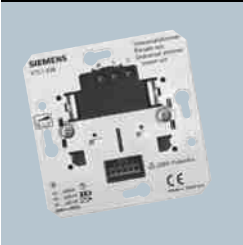
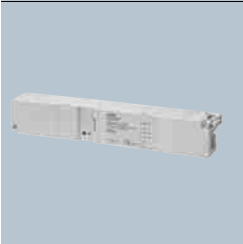
Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
 AP 261	AP 261 wave binary inputs¹⁾ With battery	►	5WG3 261-3AB11		1	1	030	0.096

5WG3 261-3AB11

¹⁾ Battery included in delivery.

* You can order this quantity or a multiple thereof.

Overview

Devices		Application	Page
	Lighting	The universal dimmer sys insert is a flush-mounting device for switching and dimming.	17/18
	Sun protection, anti-glare protection, utilization of daylight	Sun and anti-glare protection is provided by the appropriate actuators and sensors.	17/19
	Safety	The following components for GAMMA wave offer protection against intrusion and fire.	17/21

GAMMA wave Radio System

Devices for Special Applications

Lighting

Technical specifications

Type	Description
	Universal dimmer sys inserts Flush mounting - For switching and dimming of incandescent lamps, HV and LV halogen lamps with electronic or conventional transformers, rated operational voltage 230 V AC, rated operational power 50 ... 420 VA for incandescent lamp rating and LV halogen lamps with conventional transformer and 70 ... 420 VA for LV halogen lamps with electronic transformers 2-wire connection method - Automatic load detection - Lamp friendly soft start - Storing and switching on at one brightness value - Electronic short-circuit and over temperature protection 10-pole socket for plugging in a UP 210 wave pushbutton for the local and remote control over KNX radio - Secondary input for auxiliary operation over conventional pushbuttons - For mounting in an installation box (Ø 60 mm, depth: 40 mm) with screw or claw fixing - Dimensions (H x W x D): 71 x 71 x 32 mm

GAMMA wave flush-mounting combinations

Operator interfaces	sys pushbuttons ¹⁾	UP 210 wave pushbuttons	sys shutter/blind pushbuttons ¹⁾	UP 211 wave shutter/blind pushbuttons	instabus pushbuttons, single, double
Device inserts					
Universal dimmer sys inserts	✓	✓	--	--	--
sys switching inserts	--	✓	--	--	--
Shutter/blind control sys inserts	--	--	✓	✓	--
UP 110 wall-mounted transmitters "Batterie" wave	--	--	--	--	✓
UP 110 wall-mounted transmitters 230 V wave	--	--	--	--	✓
UP 560 wall-mounted transmitters "Aktor" 230 V wave	--	--	--	--	✓

¹⁾ See Catalog ET D1.

Selection and ordering data

Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
				Unit(s)	Unit(s)		kg
 Universal dimmer sys inserts¹⁾ Flush mounting	►	5TC1 230		1	1	024	0.089

5TC1 230

¹⁾ The UP 210 wave pushbutton and matching frame must be ordered separately. Battery included in delivery.

* You can order this quantity or a multiple thereof.

GAMMA wave Radio System

Devices for Special Applications

Sun protection, anti-glare protection,
utilization of daylight

Technical specifications

Type	Description
 GE 520	GE 520 wave shutter/blind actuators 1 x 230 V AC, 6 A • KNX radio transmitter/receiver for 868 MHz • For control of a solar protection drive with AC motor for 230 V AC and electromechanical limit switches • Electrically interlocked relays for reversing direction of rotation • Relay contacts for rated voltage 230 V AC, 6 A • Electronics powered over 230 V AC • Commissioning over a pushbutton located on the top - no additional aids required • Dimensions (H x W x L): 42 x 32 x 274.5 mm
	Shutter/blind control sys inserts Flush mounting • For control of sun/anti-glare protection drive for 230 V AC with mechanical or electronic limit switches, rated operational voltage 230 V AC, rated operational capacity 1 motor with max. 1000 VA, with 2 relays which are interlocked against each other with a minimum switchover time of approx. 1 s • Secondary input for additional operation over conventional UP/DOWN pushbuttons, with safety function "wind alarm", which can be implemented through the secondary input "UP" • 10-pole socket for plugging in a UP 211 wave shutter/blind pushbutton for local and remote control over KNX radio • For mounting in an installation box (Ø 60 mm, depth: 40 mm) with screw or claw fixing • Dimensions (H x W x D): 71 x 71 x 32 mm
 AP 260	AP 260 wave door/window contacts With battery, surface mounting • For detecting the state (closed/open) of a door or window over the reed contact integrated in the device, with actuation of the reed contact through the supplied magnet for attachment to the moving part of the door or window • Connection for an external floating contact • Transmission of the switching state to a shutter/blind sys insert with clipped on wave shutter/blind pushbutton or to the wave Touch Manager • 4 plug-in terminals for wire cross-sections of 0.14 ... 0.5 mm² (solid or finely stranded) for connection of the external contact and for setting through a wire jumper, whether monitoring is to cover internal contact only, external contact only, or both contacts • KNX radio transmitter for 868 MHz • Electronics powered over a lithium battery (1/2 AA 3.6 V), with a battery service life of approx. 5 years, with signaling of battery status every 24 hours, with LED that flashes every 10 seconds to indicate that the battery needs replacing • Commissioning over a pushbutton located on the front of the sensor - no additional aids required • Surface mounting • Comprising one mounting plate for screw or adhesive fixing, clip-on radio sensor with integrated reed contact and trigger magnet • Dimensions (H x W x D): Sensor 87 x 36 x 27 mm, magnet 40 x 10 x 10 mm

GAMMA wave flush-mounting combinations

Operator interfaces	sys pushbuttons ¹⁾	UP 210 wave pushbuttons	sys shutter/blind pushbuttons ¹⁾	UP 211 wave shutter/blind pushbuttons	instabus pushbuttons, single, double
Device inserts					
Universal dimmer sys inserts	✓	✓	--	--	--
sys switching inserts	--	✓	--	--	--
Shutter/blind control sys inserts	--	--	✓	✓	--
UP 110 wall-mounted transmitters "Batterie" wave	--	--	--	--	✓
UP 110 wall-mounted transmitters 230 V wave	--	--	--	--	✓
UP 560 wall-mounted transmitters "Aktor" 230 V wave	--	--	--	--	✓

¹⁾ See Catalog ET D1.

GAMMA wave Radio System

Devices for Special Applications

Sun protection, anti-glare protection,
utilization of daylight

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
						Unit(s)	Unit(s)		
	GE 520	GE 520 wave shutter/blind actuators 1 x 230 V AC, 6 A	A	5WG3 520-4AB01		1	1	030	0.220
5WG3 520-4AB01									
		Shutter/blind control sys inserts ¹⁾²⁾ Flush mounting	▶	5TC1 231		1	1	024	0.112
5TC1 231									
	AP 260	AP 260 wave door/window contacts ³⁾ With battery, surface mounting • Titanium white • Brown	▶ B	5WG3 260-3AB11 5WG3 260-3AB81		1 1	1 1	030 030	0.096 0.096
5WG3 260-3AB11									

¹⁾ Matching frames must be ordered separately.

²⁾ UP 211 wave shutter/blind pushbuttons must be ordered separately.

³⁾ Battery included in delivery.

Technical specifications

Type	Description
	DELTA reflex smoke detector "Batterie" Surface mounting - For early detection of fires in buildings, with optical measuring method for smoke detection - VdS approval - Integrated acoustic alarm signal generator - Alarm/acknowledge pushbutton and integrated LED for display of normal mode, smoke alarm and weak battery - Base for surface mounting and a screw-on sensor head - Interface and plug-in terminals for networking up to 40 detectors over a 2-wire cable with an overall length of up to 400 m - Module slot for insertion of a smoke detector module "Relais" or a wave smoke detector module - Electronics powered by three Mignon batteries (AA 1.5 V), with a battery service life of 5 years - Dimensions in mm: Ø 120, height 44
	Accessories
	Smoke detector modules "Relais" - For insertion in the DELTA reflex smoke detector "Batterie" - For connection of external alarm sensors, such as horns, sirens and signal generators - Floating changeover contact, with switching voltage up to 30 V DC/42 V AC, switching current up to DC 1 A/AC 0.5 A - Terminals for cables with Ø 0.4 ... 0.8 mm - Powered over smoke detector - Dimensions (H x W): 43 x 38 mm
 M 255	DELTA reflex wave UNI M 255 smoke detector modules - Radio modules with KNX radio transmitter for 868 MHz - For insertion in the DELTA reflex smoke detector "Batterie" - Alarm transmission over KNX radio when a smoke alarm is triggered at the smoke detector - Transmission of the battery status of the smoke detector over KNX radio - Commissioning over a pushbutton– no additional aids required - Powered over smoke detector - Dimensions (H x W x D): 63 x 38 x 15 mm
 AP 260	AP 260 wave door/window contacts With battery, surface mounting - For detecting the state (closed/open) of a door or window over the reed contact integrated in the device, with actuation of the reed contact through the supplied magnet for attachment to the moving part of the door or window - Connection for an external floating contact - Transmission of the switching state to a shutter/blind sys insert with clipped on wave shutter/blind pushbutton 4 plug-in terminals for wire cross-sections of 0.14 ... 0.5 mm² (solid or finely stranded) for connection of the external contact and for setting over a wire jumper, whether monitoring is to cover internal contact only, external contact only, or both contacts - KNX radio transmitter for 868 MHz - Electronics powered over a lithium battery (1/2 AA 3.6 V), with a battery service life of approx. 5 years, with signaling of battery status every 24 hours, with LED that flashes every 10 seconds to indicate that the battery needs replacing - Commissioning over a pushbutton located on the front of the sensor – no additional aids required - Surface mounting - Comprising one mounting plate for screw or adhesive fastening, clip-on radio sensor with integrated reed contact and trigger magnet - Dimensions (H x W x D): Sensor 87 x 36 x 27 mm, magnet 40 x 10 x 10 mm

GAMMA wave Radio System

Devices for Special Applications

Safety

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/ P. unit	PG	Weight per PU approx. kg
						Unit(s)	Unit(s)		
	DELTA reflex smoke detectors "Batterie"¹⁾								
	Surface mounting								
	• Titanium white • Aluminum metallic • Tobacco		►	5TC1 290		1	1	024	0.375
			►	5TC1 293		1	1	024	0.352
			A	5TC1 294		1	1	024	0.352
Accessories									
		Smoke detector modules "Relais"²⁾	A	5TC1 291		1	1	024	0.045
	M 255	DELTA reflex wave UNI M 255 smoke detector modules²⁾	A	5WG3 255-8AB01		1	1	030	0.420
	AP 260	AP 260 wave door/window contacts¹⁾							
		With battery, surface mounting							
		• Titanium white • Brown	►	5WG3 260-3AB11		1	1	030	0.096
			B	5WG3 260-3AB81		1	1	030	0.096

5WG3 260-3AB11

¹⁾ Battery included in delivery.²⁾ For insertion in the DELTA reflex smoke detector, titanium white (5TC1 290), aluminum metallic (5TC1 293) or tobacco (5TC1 294).

GAMMA wave Radio System

Gateways, Interface Converters

Introduction

Overview

Devices		Application	Page
	KNX/KNX radio	wave/ <u>instabus</u> couplers make wireless operation easy.	17/24
	EnOcean/KNX radio	EnOcean /KNX radio gateways allow integration of battery-free pushbuttons in the GAMMA wave system.	17/25

GAMMA wave Radio System

Gateways, Interface Converters

KNX/KNX radio

Technical specifications

Type	Description
 UP 140	UP 140 wave/<i>instabus</i> couplers - For coupling GAMMA wave with GAMMA <i>instabus</i> - Coupling of a total of up to 50 GAMMA wave sensor channels with GAMMA <i>instabus</i> actuator channels or GAMMA <i>instabus</i> sensor channels with GAMMA wave actuator channels - Pushbutton rocker, single with intermediate position - Vertical operation - ETS3 and higher supports configuration of the functions: switching, switching and dimming, shutter/blind control or scene control - Short and long button press for ON/OFF, BRIGHTER/DARKER for dimming or UP/DOWN and adjustment of slats for shutter/blind control - Storage and call up of up to two scenes 1 LED for the indication of telegram transmissions - KNX radio transmitter/receiver for 868 MHz 10-pole plug for plugging onto a UP 114 bus coupling unit, version BCU 2.1.

		i-system	DELTA profil	DELTA style
		Single	Single	Single
Dimensions				
• Length	mm	55	65	68
• Width	mm	55	65	68
• Depth	mm	13	14	16.5

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg

i-system



UP 140 UP 140 wave couplers/*instabus*¹⁾²⁾

- Titanium white
- Carbon metallic
- Aluminum metallic

►	5WG3 140-2HB11	1	1	022	0.050
B	5WG3 140-2HB21	1	1	022	0.050
A	5WG3 140-2HB31	1	1	022	0.050

5WG3 140-2HB11

DELTA profil



UP 140 UP 140 wave couplers/*instabus*¹⁾²⁾

- Pearl gray
- Titanium white
- Anthracite
- Silver

B	5WG3 140-2AB01	1	1	022	0.050
►	5WG3 140-2AB11	1	1	022	0.050
B	5WG3 140-2AB21	1	1	022	0.050
A	5WG3 140-2AB71	1	1	022	0.050

5WG3 140-2AB11

DELTA style



UP 140 UP 140 wave couplers/*instabus*¹⁾²⁾

- Titanium white
- Basalt black
- Platinum metallic

►	5WG3 140-2GB11	1	1	022	0.050
B	5WG3 140-2GB21	1	1	022	0.050
B	5WG3 140-2GB41	1	1	022	0.036

5WG3 140-2GB11

¹⁾ The bus coupling unit must be ordered separately.

²⁾ The matching design frame must be ordered separately.

GAMMA wave Radio System

Gateways, Interface Converters

EnOcean/KNX radio

Technical specifications

Type	Description
 GE 561/11	GE 561/11 wave switch actuators With EnOcean/wave interface converters • KNX radio transmitter/receiver for 868 MHz • EnOcean radio receiver for 868 MHz • Converter of EnOcean radio to KNX radio for the control of KNX radio actuators over EnOcean radio pushbuttons • Control of internal actuator channels over KNX and/or EnOcean radio pushbuttons • One relay contact per output • Contact rated operational voltage, 230 V AC • Rated current 16 A at p.f. = 1 • With option for setting whether load should be permanently switched ON or OFF (normal mode) or whether actuator should operate in timer mode with an adjustable ON period of 1 ... 60 minutes • Electronics powered over 230 V AC • Commissioning over a pushbutton located on the top – no additional aids required • Modular installation device • Dimensions (W x H x L): 42 x 32 x 274.5 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	GE 561/11		GE 561/11 wave switch actuators 2 x 230 V AC, 16 A, with EnOcean/wave interface converters	► 5WG3 561-4AB11	1	1	030	0.220

5WG3 561-4AB11

GAMMA wave Radio System

System Products

Introduction

Overview

Devices		Application	Page
	Transmitters, receivers	This includes a selection of wall-mounted transmitters for wireless operation.	17/27
	Repeaters	Improves KNX radio communication when greater distances are required.	17/29

GAMMA wave Radio System

System Products

Transmitters, receivers

Technical specifications

Type	Description
 	UP 110 UP 110 wall-mounted transmitters wave - For the wireless operation of up to 2 different room functions and for the control of actuators over KNX radio 10-pole plug-in connector for plugging in an <i>instabus</i> pushbutton, single or double, as operator interface - Adjustable function; switching, switching and dimming, shutter/blind control and scene control - Short and long button press for ON/OFF, BRIGHTER/DARKER for dimming or UP/DOWN and adjustment of slats for shutter/blind control - Storage and call up of up to four scenes - KNX radio transmitter/receiver for 868 MHz UP 110 wall-mounted transmitters "Batterie" wave - Electronics powered over a lithium battery (½ AA 3.6 V) - Dimensions (H x W x D): 71 x 71 x 24 mm. UP 110/11 wall-mounted transmitters 230 V wave - Electronics powered over 230 V AC - Dimensions (H x W x D): 71 x 71 x 32 mm
	UP 560 UP 560 wall-mounted transmitters "Aktor" 230 V wave - For the wireless operation of up to 2 different room functions and for the control of actuators over KNX radio 10-pole plug-in connector for plugging in an <i>instabus</i> pushbutton, single or double, as operator interface - Adjustable function; switching, switching and dimming, shutter/blind control and scene control - Short and long button press for ON/OFF, BRIGHTER/DARKER for dimming or UP/DOWN and adjustment of slats for shutter/blind control - Storage and call up of up to four scenes - With integrated switch actuator with relay contact, rated for 230 V AC, 6 A (resistive load), with option for setting whether load should be permanently switched on or off (normal mode) or whether actuator should operate in timer mode with an adjustable ON period of 1, 5 or 15 minutes - KNX radio transmitter/receiver for 868 MHz - Electronics powered over 230 V AC - Commissioning over six DIL switches located on the front panel – no additional aids required - For mounting in an installation box (Ø 60 mm, depth: 40 mm) with screw or claw fixing - Dimensions (H x W x D): 71 x 71 x 32 mm

GAMMA wave flush-mounting combinations

Operator interfaces	sys pushbuttons ¹⁾	UP 210 wave pushbuttons	sys shutter/blind pushbuttons ¹⁾	UP 211 wave shutter/blind pushbuttons	<i>instabus</i> pushbuttons, single, double
Device inserts					
Universal dimmer sys inserts	✓	✓	--	--	--
sys switching inserts	--	✓	--	--	--
Shutter/blind control sys inserts	--	--	✓	✓	--
UP 110 wall-mounted transmitters "Batterie" wave	--	--	--	--	✓
UP 110 wall-mounted transmitters 230 V wave	--	--	--	--	✓
UP 560 wall-mounted transmitters "Aktor" 230 V wave	--	--	--	--	✓

1) See Catalog ET D1.

GAMMA wave Radio System

System Products

Transmitters, receivers

Selection and ordering data

	Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx. kg
						Unit(s)	Unit(s)		
	UP 110	UP 110 wall-mounted transmitters "Batterie" wave ¹⁾²⁾³⁾⁴⁾	▶	5WG3 110-2AB01		1	1	030	0.050
5WG3 110-2AB01									
	UP 110/11	UP 110/11 wall-mounted transmitters 230 V wave ¹⁾²⁾³⁾	B	5WG3 110-2AB11		1	1	030	0.068
5WG3 110-2AB11									
	UP 560	UP 560 wall-mounted transmitters "Aktor" 230 V wave ¹⁾²⁾	▶	5WG3 560-2AB01		1	1	030	0.074
5WG3 560-2AB01									

5WG3 560-2AB01

1) *instabus* pushbuttons and matching frames must be ordered separately.

2) Matching frames and surface-mounting enclosures (where applicable) must be ordered separately.

3) Surface-mounting enclosures, where applicable, must be ordered separately.

4) Battery included in delivery.

GAMMA wave Radio System

System Products

Repeaters

Technical specifications

Type	Description
 UP 141	UP 141 wave repeaters - For improving the KNX radio communication through the single repetition of each correctly received KNX radio telegram, if KNX radio telegrams are so dampened by several walls, ceilings or fixtures that an assigned receiver can no longer properly receive the KNX radio telegrams - No teach-in to other KNX radio devices required - KNX radio transmitter/receiver for 868 MHz - Electronics powered over 230 V AC - For mounting in an installation box (Ø 60 mm, depth: 40 mm) with screw or claw fixing - Central threaded hole for screwing onto a blanking cover plate - Dimensions (H x W x D): 71 x 71 x 32 mm

Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU	PS*/P. unit	PG	Weight per PU approx.
					Unit(s)	Unit(s)		kg
	UP 141		UP 141 wave repeaters ¹⁾²⁾	A	5WG3 141-2AB01	1	1	030 0.065

5WG3 141-2AB01

1) Blanking cover plates must be ordered separately.

2) Matching frames must be ordered separately.

GAMMA wave Radio System

Notes



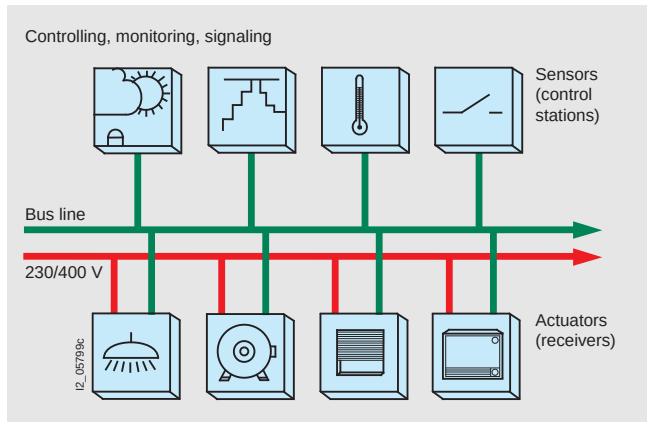
18/2	System overview
18/6	Commissioning over Ethernet (LAN)
18/7	Commissioning over W-LAN
18/8	Coupling lines over Ethernet (LAN)
18/9	Remote access over the Internet (DSL)
18/10	Visualization over Ethernet (LAN)
18/11	Remote access to several locations
18/12	Monitoring locations over Ethernet (LAN)
18/13	Fault indication over Ethernet (LAN)
18/14	Switch/dimming actuators for controlling DALI lighting
18/15	Wireless remote control

Application Examples

System overview

Overview

General information



Ever increasing demands made on the flexibility and convenience of electrical installations, combined with the demand to minimize energy requirements, have led to the development of building management systems. The bus technology used in these systems is based on manufacture-independent and internationally standardized technology: KNX. More than 100 manufacturers support this standard and have joined forces to form the KNX Association.

The member companies ensure the availability of bus-compatible products. This has made it possible for devices from various manufacturers to be used in a single KNX system.

Demand for more convenience and the fact that more and more is technically possible means that an increasing amount of time and effort is being devoted to electrical installations. While conventional electrical installation technology has reached the limits of its capabilities, GAMMA *instabus*, the intelligent building management systems from Siemens based on KNX has made it possible to satisfy these comprehensive demands with solutions that are both easy to manage and affordable.

System arguments

In conventional electrical installations, each function needs its own cable and each control system a separate network. By contrast, GAMMA *instabus* allows all operational functions and processes to be controlled, monitored and signaled over a single common cable. This means that the energy feeder can be routed directly to consumers without any detours.

Not only does this reduce the amount of cables required, it also has other huge advantages: electrical installations in buildings are far simpler to install and it is also easy to add any subsequent extensions and make modifications. If the purpose or configuration of a building is changed, the GAMMA *instabus* system is easy to adapt by simply reassigning the various bus devices (changing their parameters), without the need to lay any new cables. These parameters can be reassigned using a PC connected to GAMMA *instabus* and the configuration and commissioning software ETS (Engineering Tool Software).

With the right interfaces, GAMMA *instabus* can also be connected to the control centers of other building management and automation systems (e.g. SICLIMAT X) or to a public telephone network (e.g. ISDN) or using a LAN/Internet connection. It is therefore just as cost-effective to use the GAMMA *instabus* in the family home as in hotels, schools, banks, office buildings or complex non-residential buildings.

Transmission technology

GAMMA *instabus* based on KNX is a distributed, event-controlled bus system with serial data transmission for the controlling, monitoring and signaling of operational functions.

All the connected bus devices can exchange data over a common transmission path, the bus. Data is transmitted in serial mode and in compliance with precisely defined rules (the bus protocol). The data to be transmitted is packed into a telegram and sent over the bus from a sensor (the command output) to one or more actuators (the command receiver).

Each recipient acknowledges receipt of the telegram when the transmission is successful. If no acknowledgement is issued, transmission is repeated up to three times. If the telegram is still not acknowledged, the send operation is aborted and the error noted in the memory of the transmitter.

Transmission of data using KNX is not electrically isolated as the power supply for the bus devices (24 V DC) is transmitted at the same time. The telegrams are modulated on this direct voltage, whereby a logic zero is transmitted as a pulse. The omission of a pulse is interpreted as a logic one.

The individual data of the telegrams are transmitted in asynchronous mode. However, transmission is synchronized by start and stop bits.

Access to the bus as the shared physical medium of communication for asynchronous transmission must be controlled unambiguously. In the case of KNX, the CSMA/CA procedure is used for this purpose. The CSMA/CA procedure guarantees collision-free access to the bus without any reduction of bus data throughput.

All stations listen in but only those actuators actually addressed respond. If a station wants to transmit, it first has to listen in and wait until no other station is transmitting (Carrier Sense). When the bus is unoccupied, any station can begin a transmission operation (Multiple Access).

If two stations begin to transmit simultaneously, the higher-priority instantly asserts itself on the bus (Collision Avoidance), while the other station pulls back and restarts the transmission operation some time later.

If the two stations have an identical level of priority, the one with the smaller physical address asserts itself.

Addressing

Every letter needs an address in order for it to be correctly delivered by the postal service. The addressing of bus devices is similar, but the form used for postal purposes is unsuitable in this case.

During configuration with the ETS, each bus device is assigned its own physical address with which it can be uniquely identified; just like a postal address is a unique ID for the recipient of a letter. However, the physical address has to be expressed in the language of the bus and is based on the topological structure of the KNX system.

Physical addressing is used by the ETS only for commissioning the individual bus devices or for servicing and diagnostics activities. In this case the addressing is performed along the same lines as for the postal delivery service.

By contrast, the KNX system uses a different address for telegram traffic: the logical or so-called group address. This address is not based on the bus topology but on the operational functions (applications) of the building.

Unlike the postal service, which delivers a letter to the recipient's address, the configured group address is written into each telegram sent by the transmitter. Every bus device listens to this telegram, reads the group address contained in it, and checks whether the telegram is addressed to it or not.

The group address to which a bus device should respond is assigned during configuration of the KNX system using ETS. Unlike the postal delivery service, several group addresses can be assigned to one bus device.

When a bus device is listening to a telegram on the bus, it will always receive the telegram if it responds to the group address entered in the telegram. If not, it will discard the telegram as not being intended for it.

Topology

Up to 64 bus-compatible devices (stations) can be connected to and operated on the smallest unit of the KNX system, i.e. on a single line. Using line couplers connected to the so-called main line it is possible to bundle up to 15 lines in an area.

Fifteen areas can be joined together by means of backbone couplers, which are connected to the so-called backbone lines, in order to form a larger unit.

Interfaces (gateways) to third-party systems (SICLIMAT X, LAN, etc.), or additional KNX systems are connected to the backbone line.

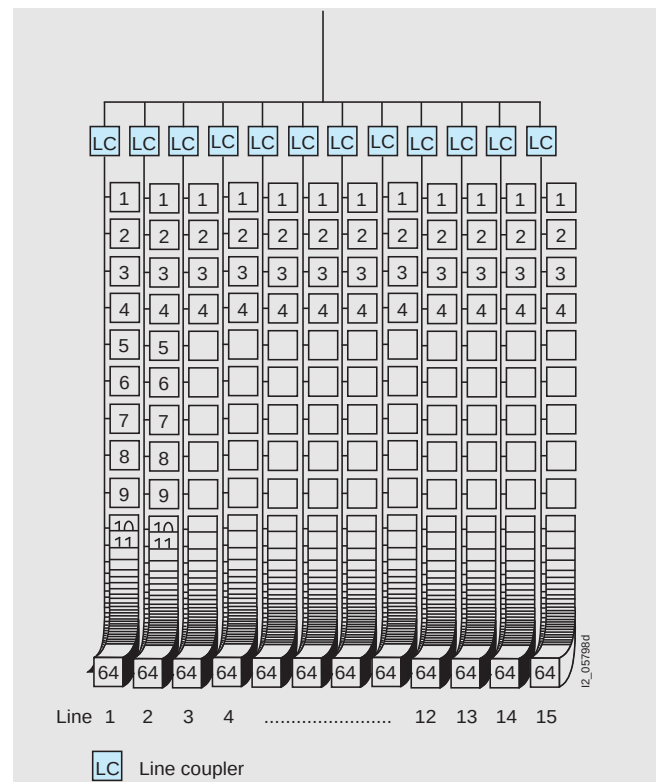
Although more than 14,000 devices can be interconnected in a single unit, the clear-cut logic of the system is preserved. Telegrams only ever overstep the interfaces to other lines and function areas if they are needed in those areas. This minimizes the telegram load on the main line. Line/backbone couplers carry out the necessary filter function.

The physical address is based on this topological structure: every device can be uniquely identified through the specification of its area, line and device number. For assignment of the devices to the operational functions the group addresses are divided into main groups and subgroups.

During configuration it is possible to divide the group addresses for different management functions into as many as 14 main groups, e.g. for

- Lighting control
- Shutter/blind control
- Room control for heating, ventilation, air conditioning.

Each main group can include as many as 2048 subgroups, to suit the user's requirements. This means that each device is able to communicate with every other one.



Technology

Each line requires its own power supply unit for the devices and is therefore self-sufficient.

The Siemens power supply unit supplies the individual devices on the line with SELV (safety extra-low voltage) of 24 V DC and, depending on the version, can be loaded with 160 mA, 320 mA or 640 mA. It features both voltage and current limiting and is therefore short-circuit resistant. Short system interruptions are jumpered with a buffer period of 200 ms.

The bus load depends on the type of devices connected. The devices are ready for operation at a minimum of 21 V DC and typically draw 150 mW from the bus. If there is a concentration of a large number of bus devices in a single location, the power supply unit must be located in the near vicinity.

A maximum of two power supply units are permissible in one line. A minimum distance of 200 m of cable length must be observed between the two power supply units.

The length of a cable plus all junctions must not exceed 1000 m. The distance between a power supply unit and a device must not exceed 350 m. In order to guarantee no telegram collisions, the distance between two devices should be limited to a maximum 700 m.

The bus cable can be laid parallel to the mains cable. It can be looped and branched. A cable terminating resistor is not required. The devices are connected to the bus by means of either pressure contact or bus terminals. Connection by means of pressure contact is effected by snap-fitting the devices (designed for installation in distribution boards) on to the standard mounting rail (EN 50022-35 mm x 7.5 mm) with integrated data rail. Transition from the data rail to the bus cable is effected by a connector. The bus cable is connected to surface-mounting, flush-mounting, wall-mounting, ceiling-mounting and built-in devices by plugging on the bus terminal.

Application Examples

System overview

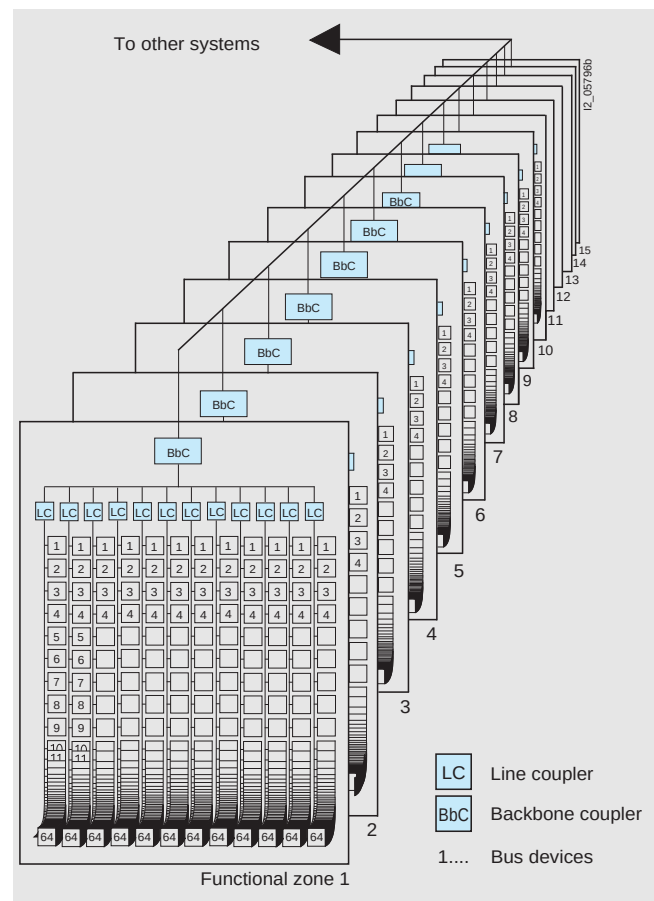
Devices

Each device generally comprises a universal *Bus Coupling Unit* (BCU) and a task-specific *Bus Terminal* (BT, e.g. pushbutton or display), which exchanges information with the BCU over the *Peripheral External Interface* (PEI). The BCU receives telegrams from the bus, decodes them and actuates the BT. Conversely, the BT sends information to the BCU, which encodes it and sends it as a telegram onto the bus.

During configuration and commissioning with the ETS the BCU receives the parameterization data for the function that is to be performed. For this purpose, the BCU contains a *Microprocessor* (MP) with a non-volatile ROM (*Read Only Memory*), a volatile RAM (*Random Access Memory*) and a non-volatile EEPROM (*Electrically Erasable Programmable ROM*).

The ROM contains the system-specific software that cannot be changed by the user. The parameterization data for the function of the BCU to be performed are saved by the ETS in the EEPROM. The current data are saved by the MP in the RAM.

The assignment of the PEI pins differs on the various BTs. This ensures that a BT connected through the PEI is able to communicate error-free with the BCU when the relevant application program has been loaded by ETS in the EEPROM of the BCU.



System data		
Bus cable		
• Cable type	mm ²	YCYM 2 x 2 x 0.8 One core pair (red, black) for signal transmission and power supply. One core pair (yellow, white) for additional applications (SELV or voice)
Cable length		
• Cable lengths of one line in total (core diameter: 0.8 mm)	m	Max. 1000 (including all junctions)
• Length between two bus devices	m	Max. 700
• Length between bus device and power supply unit (320 mA)/reactor	m	Max. 350
• Length between power supply unit (320 mA) and reactor		Side-by-side mounting necessary (on standard mounting rail with integrated data rail)
Bus devices		
• Number of areas		Max. 15
• Number of lines per area		Max. 15
• Number of bus devices per line		Max. 64
Topology		Line, star or tree structure
Power supply		
• Power supply	V DC	24 (SELV safety extra-low voltage)
• Power supply units per line		One power supply unit (160, 320 or 640 mA)
• Power supply units per line for high current demand		Max. two power supply units at a distance of at least 200 m
Transmission		
• Transmission technology		Distributed, event-controlled, serial, symmetric
• Baud rate	bit/s	9600
Device features (unless otherwise specified)		
Degree of protection according to EN 60529		IP 20
Protective measure		Bus: safety extra-low voltage SELV 24 V DC
Overvoltage category		III
Rated insulation voltage U_i	V	250
Degree of pollution		2
EMC requirements		Complies with EN 50081-1 and prEN 50082-2 (severity 3), prEN 50090-2-2, KNX/EIB manual
Resistance to climate		prEN 50090-2-2, KNX/EIB manual
Operating conditions		
• Application		For fixed installation indoors, for dry rooms and installation in heavy-current distribution boards
• Ambient operating temperature	°C	-5 to +45
• Humidity in operation	%	Max. 93
• Storage temperature	°C	-40 to +55
• Humidity in storage	%	Max. 93
Certification		KNX/EIB certified
CE marking		Compliant with EMC Directive (residential and non-residential buildings), Low Voltage Directive

Application Examples

Commissioning over Ethernet (LAN)

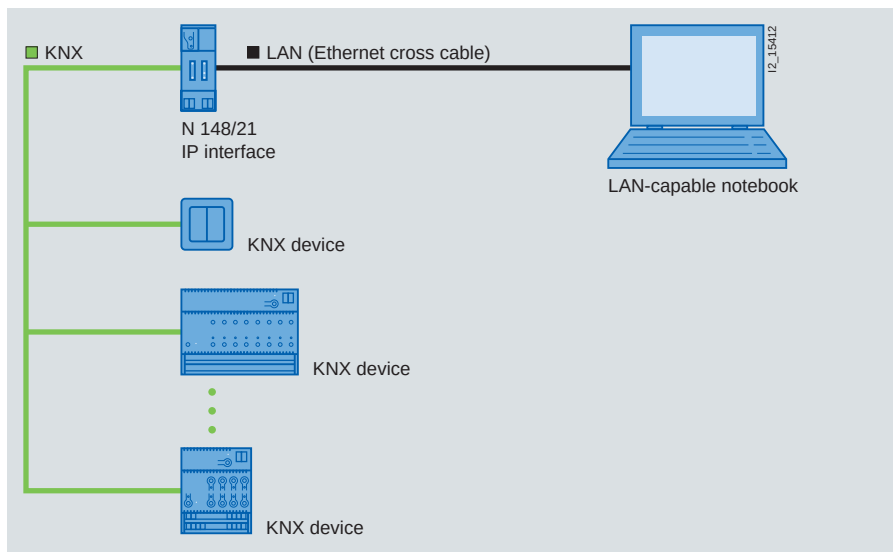
Overview

Faster downloads save time

In every GAMMA *instabus* project, the devices are commissioned once they have been installed. Once the physical addresses have been assigned, application programs, parameters and addresses are loaded to the devices. Particularly in the case of larger projects with a large number of devices, this can be a time-consuming process. However, with the Siemens LAN connection, this can now all be carried out much faster. This saves you time and money.

Simply connect your notebook to the GAMMA *instabus* over the N 148/21 IP interface and start the download. By comparison: Using LAN, the download now only takes about half the time it required using RS232 or USB.

The solution:



The benefits:

- Planning, configuring, commissioning and diagnosis with ETS3 (KNX commissioning software)
- Simply connect your notebook and start the download
- Downloading twice as fast saves you considerable time during commissioning

Proceed as follows:

- Connect the N 148/21 IP interface to the KNX
- Connect the notebook to the N 148/21 IP interface over the Ethernet cross cable – and start downloading. If using a setup with cross cable, the IP addresses of the N 148/21 IP interface and PC must be assigned manually.

You require the following:

- N 148/21 IP interface (5WG1 148-1AB21)
- 24 V power supply for N 148/21 IP interface (e.g. 4AC2 402)
- Ethernet cross cable
- LAN-capable notebook
- ETS3 (current version [see http://www.knx.org](http://www.knx.org))

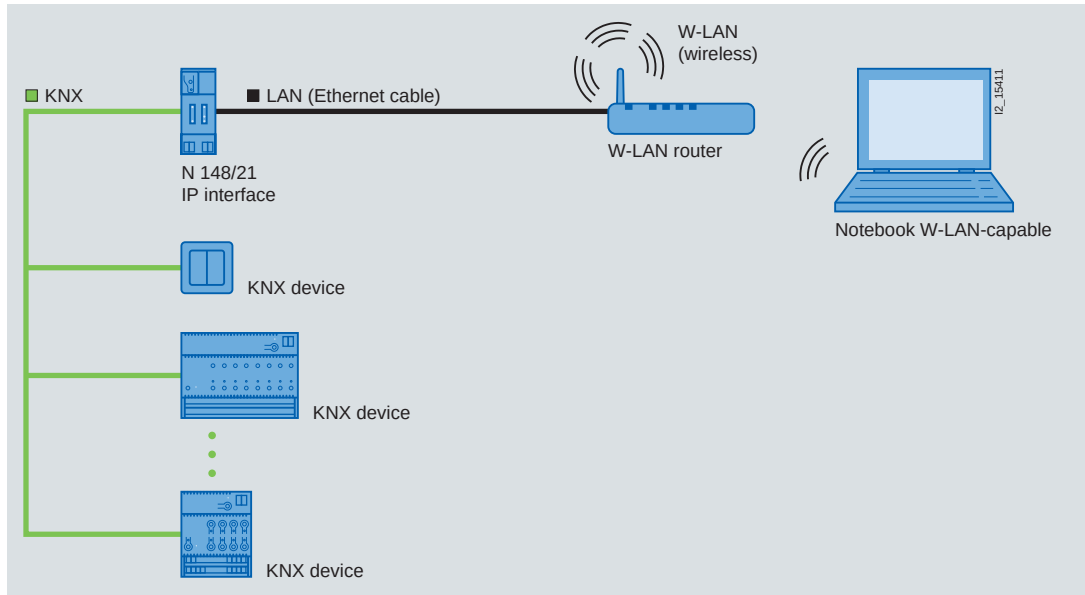
Note:

LAN stands for Local Area Network. In LANs, data transport is organized over the IP (Internet Protocol) – the standard network protocol on the Internet.

Overview**Commissioning – Now you can do it yourself**

In every GAMMA *instabus* project, the devices are commissioned once they have been installed. First you need to assign the physical addresses. To do this, select the device in the ETS3 (KNX commissioning software) on your notebook and press the programming pushbutton on the device. In the case of distributed devices, such as flush mounting bus coupling units, this means a lot of running around! One reason why these commissioning tasks are usually carried out in pairs.

But now you no longer have to go to all this trouble. Simply wirelessly connect your notebook to the KNX over W-LAN. And now you are free to roam during the commissioning process – simply take your notebook with you, wherever it's needed. It really couldn't be any quicker or easier. And there is no risk of errors, such as mixing up the devices due to ambiguous calling.

The solution:**The benefits:**

- Wireless GAMMA *instabus* commissioning over W-LAN
- Freedom of movement within the building
- Single-person commissioning

Proceed as follows:

Connect the N 148/21 IP interface to the KNX, connect the W-LAN router to the IP interface using the Ethernet cable – and you're off - free to roam the entire building with your notebook and the ETS.

You require the following:

- N 148/21 IP interface (5WG1 148-1AB21)
- 24 V power supply for N 148/21 IP interface (e.g. 4AC2 402)
- Ethernet
- W-LAN router
- W-LAN-capable notebook
- ETS3 (current version see <http://www.knx.org>)

Note:

W-LAN stands for Wireless Local Area Network. W-LANs are quick and easy to install, cover large areas and operate cost-effectively.

Application Examples

Coupling lines over Ethernet (LAN)

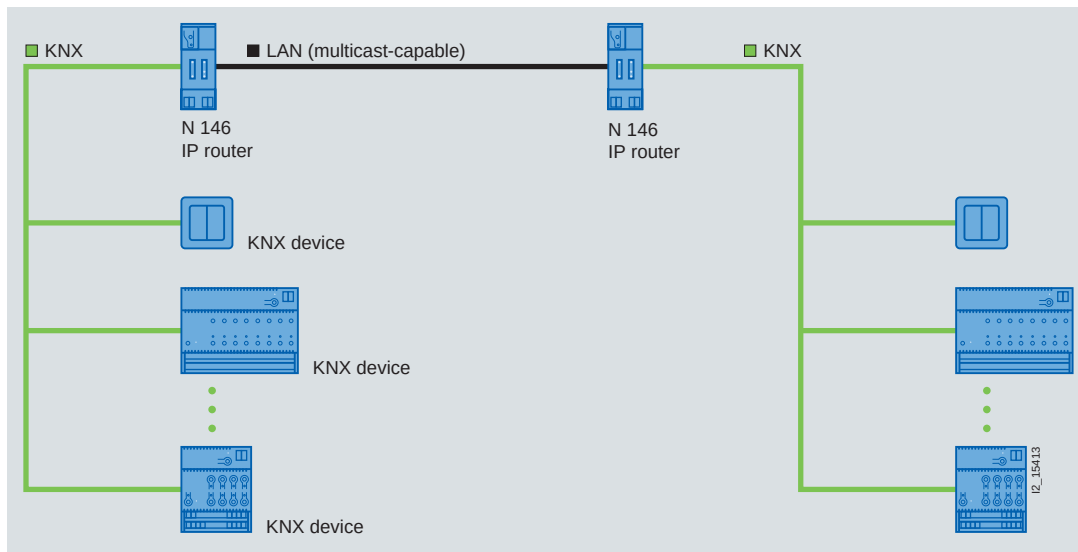
Overview

Connect main and backbone lines over KNXnet/IP

With the new KNXnet/IP standard, KNX telegrams can be transmitted over Ethernet (LAN). This enables new applications and solutions. Existing network infrastructures and technologies are used to transmit KNXdata over greater distances.

Links between buildings and/or building levels can be clearly and easily implemented using KNXnet/IP.

The solution:



The benefits:

- LAN as main and backbone line
- Supports data transmission over greater distances
- Utilization of existing data networks and components (LAN)

Proceed as follows:

- Connect an N 146 IP router to each KNX line (instead of an N 140/03 line coupler)
- Connect the N 146 IP router over a multicast-capable LAN
- Commission each N 146 IP router like a "conventional" line/backbone coupler using the ETS3.

You require the following:

- N 146 IP router (5WG1 146-1AB01), 1 x per line
- 24 V power supply for N 146 IP router (e.g. 4AC2 402)
- Ethernet patch cable or LAN, depending on the size
- ETS3 (current version see <http://www.knx.org>)

Note:

LAN stands for Local Area Network. In LANs, data transport is organized over the IP (Internet Protocol) – the standard network protocol on the Internet.

Multicast-capable: Multicast telegrams can simultaneously operate several IP devices in the LAN. In the case of network components (network switches, routers) this requires the appropriate configuration.

Remote access over the Internet (DSL)

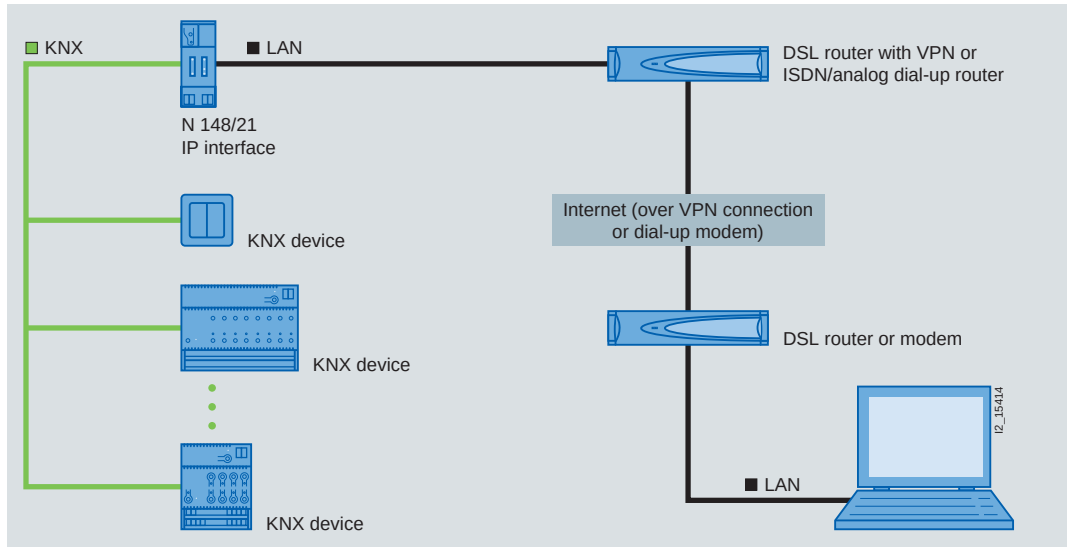
Overview

Simple modification using remote access

In virtually any project, during completion of a building, or prior to the building being used, you will be faced with the need for modifications, e.g. lighting times are too long or too short. Until now generally involved making an appointment with the customer, driving to the site, changing the parameterization, driving back to the office. Now you can carry out these modifications from the comfort of your office: With LAN/Internet, you can now carry out parameterization tasks simply, practically and

remotely. These days, virtually all buildings have LAN and Internet connections - so you always have global access. Because buildings are not always manned, it is essential to ensure data security using VPN, DSL or dial-up routers.

This saves time and money and demonstrates to your customers the degree of flexibility they can enjoy using a GAMMA *instabus* system.

The solution:*The benefits:*

- Parameters can be changed quickly and easily over remote access
- Remote access saves travel times and costs
- Data security is ensured

Proceed as follows:

- Connect the N 148/21 IP interface to the KNX
- Connect the N 148/21 IP interface to the LAN
- Configure the VPN/DSL or dial-up router

You require the following:

- N 148/21 IP interface (5WG1 148-1AB21)
- 24 V power supply for N 148/21 IP interface (e.g. 4AC2 402)
- ETS3 (current version see <http://www.knx.org>)
- VPN/DSL or ISDN/analog dial-up router

Note:

- LAN stands for Local Area Network. In LANs, data transport is organized over the IP (Internet Protocol) – the standard network protocol on the Internet.
- VPN (Virtual Private Network) lets you set up a secure subnetwork over an open, unsecured network (Internet, wireless network) by protecting all communication against access or being tapped into by unauthorized third parties. This is achieved by means of "tunneling" the data traffic over a VPN server, which means that any connections must be authenticated and that all data is also encoded.

Application Examples

Visualization over Ethernet (LAN)

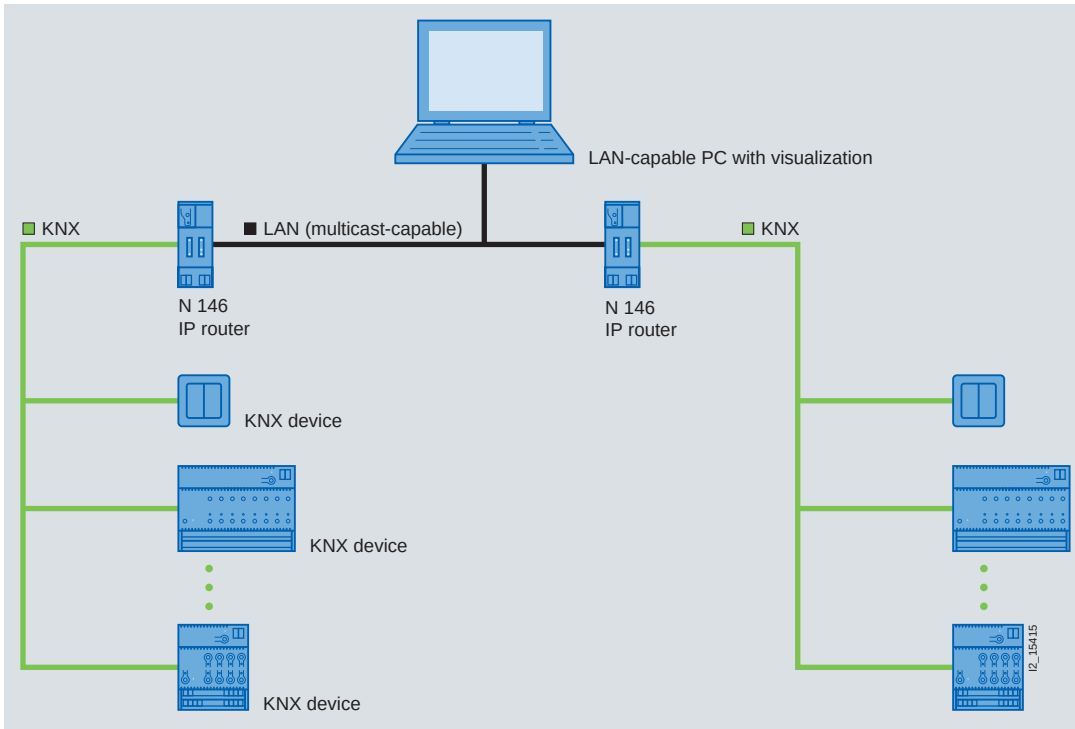
Overview

Visualization – up to 200 times faster with KNXnet/IP

When larger projects require the cyclic polling of large volumes of data points for the purposes of visualization, this can often lead to prolonged periods of waiting until the values are updated. Use the LAN as the main and backbone line and link your visualization PC to the LAN.

Visualization is then up to 200 times faster – and you can monitor larger volumes of data points. No further need for data concentrators. The data volume is irrelevant and the LAN can easily cope with that "little bit of KNX" on the side.

The solution:



The benefits:

- LAN as main and backbone line
- Visualization now up to 200 times faster
- High data volumes possible
- No data concentrators required

Proceed as follows:

- Commission the KNX devices, including the N 146 IP router
- Install visualization software
- Search for the N 146 IP router as visualization software and connect
- Configuring the visualization

You require the following:

- N 146 IP router (5WG1 146-1AB01), 1 x per line
- 24 V power supply for N 146 IP interface (e.g. 4AC2 402)
- Ethernet network (LAN)
- PC LAN-capable
- IPAS ComBridge Studio visualization software (see chapter "Display, Operation")
- ETS3 (current version see <http://www.knx.org>)

Note:

LAN stands for Local Area Network. In LANs, data transport is organized over the IP (Internet Protocol) – the standard network protocol on the Internet.

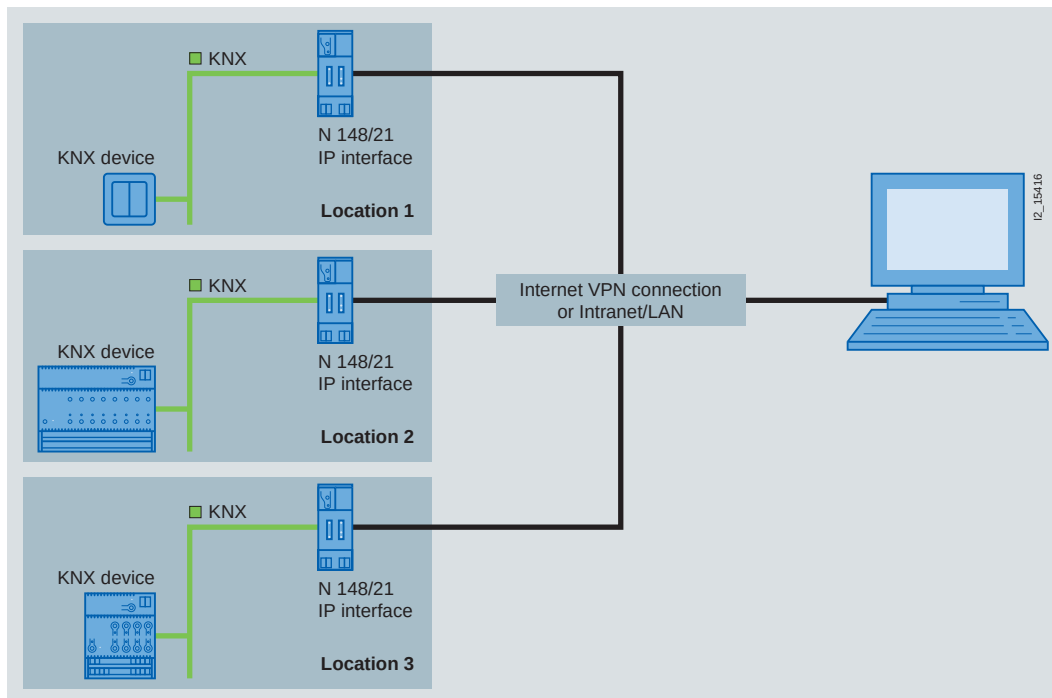
Multicast-capable: Multicast telegrams can simultaneously operate several IP devices in the LAN. In the case of network components (network switches, routers) this requires the appropriate configuration.

Overview**Remote operation and remote visualization**

In many cases, several locations need to be managed simultaneously. There are many such examples:

- Monitoring of cooling temperatures in several supermarkets or storage houses
- Monitoring of fans for failure
- Monitoring of temperature and dampness in several greenhouses.

It is now possible to carry out these monitoring tasks centrally over the Internet/Intranet from absolutely anywhere. This saves you human resources, time and money. And the Internet/Intranet is available everywhere. Commissioning is further facilitated by the fact that distributed locations can be configured identically.

The solution:**The benefits:**

- Plants and locations can be remotely visualized, controlled and monitored over existing networks
- Simple commissioning thanks to options for identical configuration of different locations

Proceed as follows:

- Connect one N 148/21 IP interface per location to the KNX
- Connect the N 148/21 IP interface to the LAN
- Configure the N 148/21 IP interface over the Intranet/Internet
- Define the N 148/21 IP interface in your visualization program/ETS3

You require the following:

- N 148/21 IP interface (5WG1 148-1AB21), 1 per location
- 24 V power supply for N 148/21 IP interface (e.g. 4AC2 402)
- IPAS ComBridge Studio visualization software (see chapter "Display, Operation")
- ETS3 (current version see <http://www.knx.org>)

Note:

- LAN stands for Local Area Network. In LANs, data transport is organized over the IP (Internet Protocol) – the standard network protocol on the Internet.
- VPN (Virtual Private Network) lets you set up a secure subnetwork over an open, unsecured network (Internet, wireless network) by protecting all communication against access or being tapped into by unauthorized third parties. This is achieved by means of "tunneling" the data traffic over a VPN server, which means that any connections must be authenticated and that all data is also encoded.

Application Examples

Monitoring locations over Ethernet (LAN)

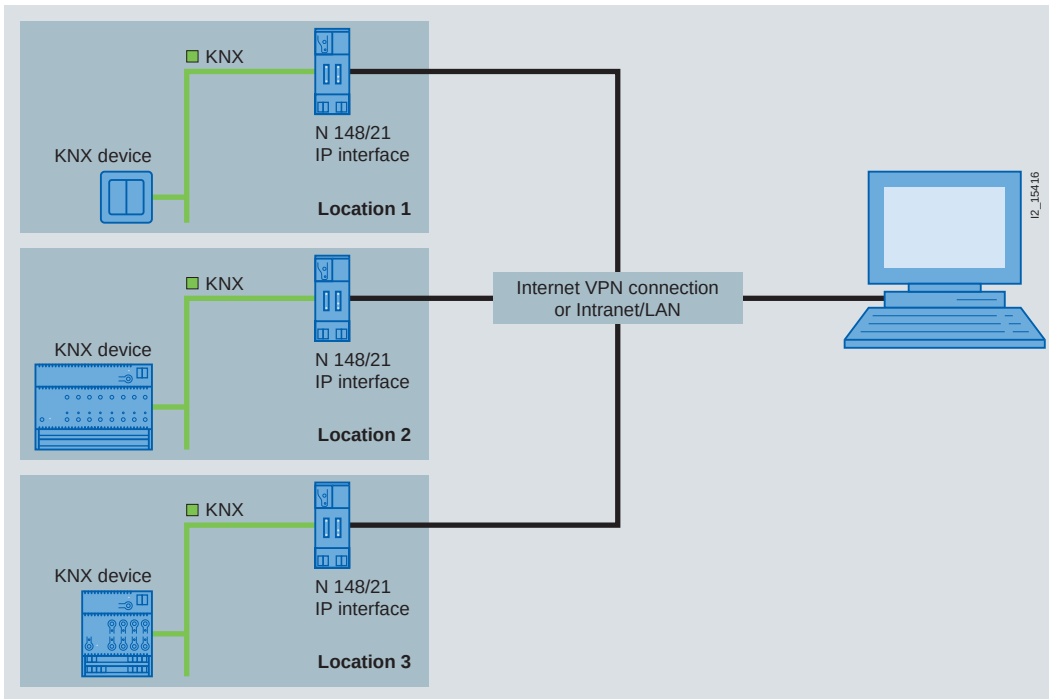
Overview

Demand-oriented maintenance through remote signaling

Some distributed locations need to be regularly checked for specific states and maintained accordingly. For example, the states of oil tanks in distributed apartment houses, or the operating hours of consumers. These states can now be signaled centrally at any location of your choice. This dispenses with the need for inspections and maintenance at regular

intervals, for example, oil tanks in distributed apartment houses only need to be topped up when necessary. And the fact that this method of operation even permits consumers to wait for favourable oil prices is just one further advantage.

The solution:



The benefits:

- Central status signaling of distributed locations
- Lower maintenance costs
- Optimization of maintenance costs

Proceed as follows:

- Connect one N 148/21 IP interface per location to the KNX
- Connect the N 148/21 IP interface to the LAN
- Configure the N 148/21 IP interface over the Intranet/Internet
- Define the N 148/21 IP interface in your visualization program/ETS3

You require the following:

- N 148/21 IP interface (5WG1 148-1AB21), 1 per location
- 24 V power supply for N 148/21 IP interface (e.g. 4AC2 402)
- IPAS ComBridge Studio visualization software (see chapter "Display, Operation")
- ETS3 (current version see <http://www.knx.org>)

Note:

- LAN stands for Local Area Network. In LANs, data transport is organized over the IP (Internet Protocol) – the standard network protocol on the Internet.
- VPN (Virtual Private Network) lets you set up a secure subnetwork over an open, unsecured network (Internet, wireless network) by protecting all communication against access or being tapped into by unauthorized third parties. This is achieved by means of "tunneling" the data traffic over a VPN server, which means that any connections must be authenticated and that all data is also encoded.

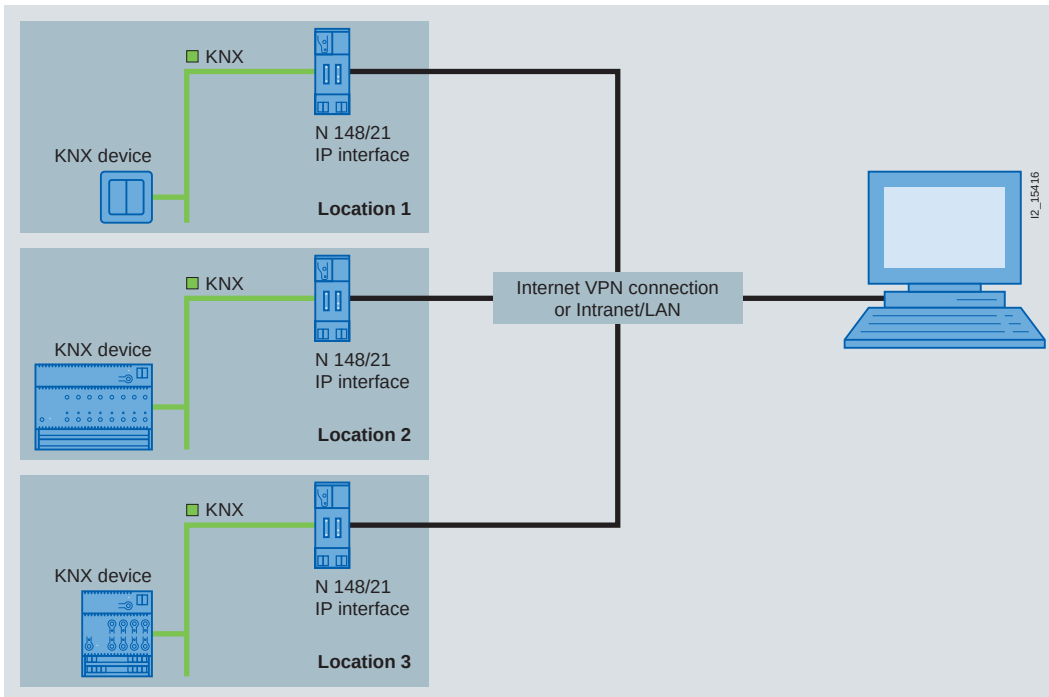
Fault indication over Ethernet (LAN)

Overview

Enhanced plant availability due to early fault detection

Whether dealing with a lamp failure in depots or offices, a drop in pressure in filters, or pump failure - automated plants in distributed locations are constantly subject to possible faults/malfunctions. The earlier such faults are detected, the less costly they are to remedy. If such plants are being controlled with GAMMA *instabus* and are connected over LAN/IP, these types

of fault indications can be forwarded over the Internet. A fast response means that the functionality of the plant is quickly re-stored and costs are kept to a minimum.

The solution:*The benefits:*

- Central solution for distributed locations
- Fast forwarding of fault indications
- Fast responses mean less damage

Proceed as follows:

- Connect one N 148/21 IP interface per location to the KNX
- Connect the N 148/21 IP interface to the LAN
- Configure the N 148/21 IP interface over the Intranet/Internet
- Define the N 148/21 IP interface in your visualization program/ETS3

You require the following:

- N 148/21 IP interface (5WG1 148-1AB21), 1 per location
- 24 V power supply for N 148/21 IP interface (e.g. 4AC2 402)
- IPAS ComBridge Studio visualization software (see chapter "Display, Operation")
- ETS3 (current version see <http://www.knx.org>)

Note:

- LAN stands for Local Area Network. In LANs, data transport is organized over the IP (Internet Protocol) – the standard network protocol on the Internet.
- VPN (Virtual Private Network) lets you set up a secure subnetwork over an open, unsecured network (Internet, wireless network) by protecting all communication against access or being tapped into by unauthorized third parties. This is achieved by means of "tunneling" the data traffic over a VPN server, which means that any connections must be authenticated and that all data is also encoded.

Application Examples

Switch/dimming actuators for controlling DALI lighting

Overview

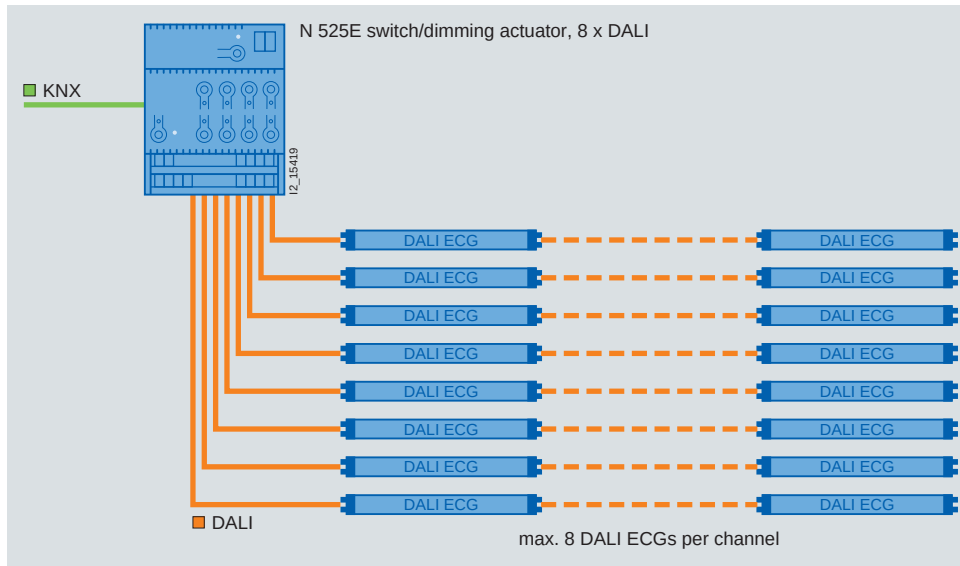
Using DALI lighting without complicated DALI commissioning

The lighting control system uses ECGs with DALI interfaces, for example, in order to be able to signal lamp failures.

Using the N 525E switch/dimming actuators, it is now possible to use DALI devices in GAMMA *instabus* without any prior knowledge of the DALI system and DALI commissioning.

The N 525E switch/dimming actuators switches and dims eight mutually independent groups of fluorescent lamps with dimmable ECG with DALI interface. Up to eight DALI ECGs can be connected to each of the eight channels.

The solution:



The benefits:

- Real 0 to 100% luminosity control
- High operating safety due to selective disconnection in the event of a fault
- Fault indications for light groups
- For individual room light control

Proceed as follows:

- Connect the N 525E switch/dimming actuator to the KNX
- Connect each group of DALI ECGs that are to be jointly controlled, to an output of the N 525E switch/dimming actuator
- Configure each channel as a conventional actuator in the ETS and program the device

You require the following:

- N 525E switch/dimming actuators (5WG1 525-1EB01)
- Dimmable ECGs with DALI interface
- ETS3 (current version [see http://www.knx.org](http://www.knx.org))

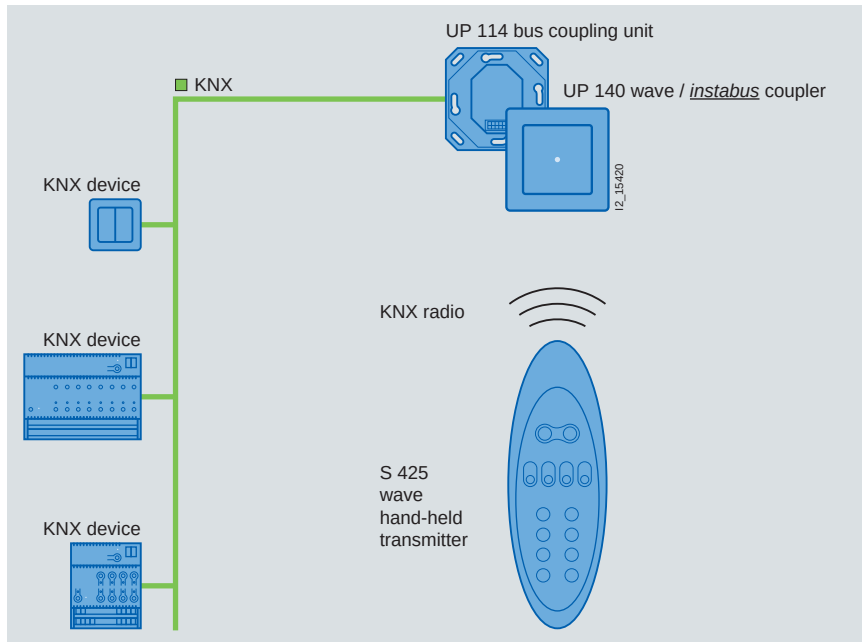
Note:

DALI stands for Digital Adressable Lighting Interface. DALI is a digital interface that is integrated in the controlgear of lamps and enables flexible wiring and commissioning. As well as switching and dimming functions, they are also able to detect and signal lighting failures.

Overview**GAMMA wave – making life simple**

Occasionally, wires are not wanted for some applications in buildings, or cables are expensive to install, e.g. cables to the window for the window contact. Or no cables are possible, as is the case with remote control applications.

In such cases, the GAMMA wave wireless system is the ideal solution. The simplest way to integrate GAMMA wave in a GAMMA *instabus* system is to use the UP 140 wave coupler/*instabus*.

The solution:**The benefits:**

- The ability to enjoy all the advantages of wireless applications in GAMMA *instabus* projects, e.g. wave hand-held transmitter, battery-operated wave door/window contacts, pushbuttons (battery-operated)
- Group telegrams from GAMMA *instabus* to GAMMA wave and vice versa
- Retrofitting without the need for new cables
- No separate device required as a gateway

Proceed as follows:

- Connect the UP 114 bus coupling units to the KNX
- Plug in the UP 140 wave/*instabus* coupler
- Configure the UP 140 wave coupler/*instabus* in the ETS3 (KNX commissioning software)
- Program the UP 140 wave/*instabus* coupler
- Teach GAMMA wave devices (e.g. wave hand-held transmitters)

You require the following:

- UP 140 wave coupler/*instabus* (e.g. in the design DELTA style, titanium white: 5WG3 140-2AB11)
- UP 114 bus coupling unit (5WG1 114-2AB02)
- Additional wave devices, depending on the application, e.g. S 425 wave hand-held transmitters (5WG3 425-7AB71)
- ETS3 (current version see <http://www.knx.org>)

Application Examples

Notes



19/2	Switch actuators
19/4	Switch/dimming actuators
19/5	Shutter/blind actuators

Technical Information

Switch actuators

Technical specifications

Load data for switch actuators per channel

		N 512/11 switch actuators, main module N 512/21 switch actuators, expansion	N 562 binary outputs	N 510/03 load switches	N 510/04 load switches	N 512 load switches	N 511/02 switch actuators	N 567 switch actuators	N 567/11 switch actuators	N 567/12 switch actuators	N 567/21 switch actuators
Contact current											
Rated current, AC	A	16	10	16	16	16	16	8	8	2	10
AC3 operation (p.f. = 0.45)	VA	3680	500	2500	3680	3680	¹⁾	500	500	¹⁾	500
Maximum switch-on peak current A/ms (if more than one, specification of the highest current value)	A/ms	¹⁾	¹⁾	400/ 0.15	600/ 0.15	600/ 0.15	¹⁾	¹⁾	110/50	¹⁾	80/20
Contact voltage											
Rated voltage, AC	V	230	230	230	230	230	230	230	230	230	230
Service life											
Mechanical service life Switching operations in millions		1	50	1	1	1	¹⁾	2	10	20	30
Electrical service life Switching operations in millions		0.1	0.1	¹⁾	¹⁾	¹⁾	¹⁾	0.1	0.1	0.1	0.1
Power loss											
Maximum power loss per device	W	3.5	3.3	26.4	20.4	41.5	¹⁾	7.3	12.7	¹⁾	¹⁾
Switching capacities/ load types, loads											
Resistive load	W	3680	2300	3680	3680	3680	¹⁾	1840	1840	460	2300
Minimum switching capacity	V/mA	12/100	24/10	12/100	12/100	12/100	¹⁾	5/100	24/10	5/10	¹⁾
DC switching capacity	V/A	24/16	30/10	24/10	24/10	24/10	¹⁾	24/8	30/10	24/8	24/16
Maximum capacitive load	μF	200	35	140	200	200	¹⁾	35	35	12	35
Incandescent lamps											
Incandescent lamps	W	3680	1000	2500	3680	3680	1000	1000	1000	500	1000
Halogen lamp, 230 V	W	3680	1000	2500	3680	3680	¹⁾	1000	1000	500	1000
LV halogen lamp with conventional transformer (inductive)	VA	2000	500	500	2000	2000	¹⁾	200 ... 500	200 ... 500	200	500
T5/T8 fluorescent lamps											
Uncorrected	VA	3680	500	2500	3680	3680	¹⁾	500	500	200	500
Parallel corrected (at max. possible C)	W	2500	2 x 58	1300	2500	2500	¹⁾	2 x 58	2 x 58	200	2 x 58
DUO circuit	VA	3680	1000	2500	3680	3680	¹⁾	1000	1000	200	1000
ECG Osram QTI 1 x 28/54 W	Unit(s)	59	37	59	59	59	¹⁾	22	22	11	¹⁾
ECG Osram QTP 1 x 18/24/36 W	Unit(s)	31	14	31	31	31	¹⁾	14	14	7	14
ECG Osram QTP 1 x 58 W	Unit(s)	21	10	21	21	21	¹⁾	10	10	5	10
ECG Osram QTP 2 x 18/24/58 W; 3 x 18 W; 4 x 18 W	Unit(s)	9	5	9	9	9	¹⁾	5	5	2	5
Compact lamps											
Uncorrected	VA	3680	500	1600	3680	3680	¹⁾	500	500	200	500
Parallel corrected (at max. possible C)	W	3000	300	1100	3000	3000	¹⁾	300	300	200	300
ECG Osram Duluxtronics DT	Unit(s)	25	15	25	25	25	¹⁾	15	15	7	15
Mercury-vapor lamps											
ECG Osram PTI 35/220-240S	Unit(s)	14	7	14	14	14	¹⁾	7	7	3	7
ECG Osram PTI 70/220-240S	Unit(s)	8	4	8	8	8	¹⁾	4	4	2	4

¹⁾ On request.

For complete technical specifications, see:

<http://www.siemens.com/gamma-td>.

GE 561/02 binary outputs	S 564 wave socket outlet switches	GE 561/01 wave switch actuators GE 561/11 wave switch actuators	UP 562 binary outputs UP 562/11 binary outputs	UP 511/10 switch actuators	UP 562/31 switch actuators	N 502 combination switch actuators	N 670 universal I/O modules
10	16	16	10	16	6	16	10
500	1)	500	500	1)	1)	500	500
1)	1)	80/20	110/50	400/20	120/20	80/20	110/50
230	230	230	230	230	230	230	230
50	1)	30	10	1)	1)	30	10
0.1	1)	0.1	0.1	1)	1)	0.1	0.1
1)	1)	1)	1)	1)	1)	1)	9
2300	1)	3680	2300	3680	1380	3680	2300
24/10	1)	1)	24/10	1)	1)	1)	24/10
30/10	1)	24/16	30/10	1)	1)	24/16	30/10
35	1)	35	35	105	14	35	35
1000	1000	1000	1000	2500	1200	1000	1000
1000	1000	1000	1000	2200	1200	1000	1000
500	1)	500	200 ... 500	1000	500	500	200 ... 500
500	1)	500	500	1)	1)	500	500
2 x 58	1)	2 x 58	2 x 58	1)	1)	2 x 58	2 x 58
1000	1)	1000	1000	1)	1)	1000	1000
37	1)	1)	37	1)	1)	1)	37
14	1)	14	14	1)	1)	14	14
10	1)	10	10	1)	1)	10	10
5	1)	5	5	1)	1)	5	5
500	1)	500	500	1)	1)	500	500
300	1)	300	300	1)	1)	300	300
15	1)	15	15	1)	1)	15	15
7	1)	7	7	1)	1)	7	7
4	1)	4	4	1)	1)	4	4

Technical Information

Switch/dimming actuators

Technical specifications

Load data for switch/dimming actuators per channel

		N 525/02 switch/dimming actuators	N 526/02 switch/dimming actuators	N 526E02 switch/dimming actuators
Contact current				
Rated current, AC	A	16	6	16
Maximum switch-on peak current (if more than one, specification of the highest current value)	A/ms ¹⁾		120/20	400/0.15
Contact voltage				
Rated voltage, AC	V	230	230	230
Service life				
Mechanical service life Switching operations in millions		¹⁾	10	1
Electrical service life Switching operations in millions		0.05	0.4	¹⁾
Power loss				
Maximum power loss per device	W	4.3	¹⁾	¹⁾
Switching capacities/ load types, loads				
Resistive load	W	3680	1380	3680
Minimum switching capacity	V/mA	12/500	¹⁾	12/100
DC switching capacity	V/A	30/16	30/8	24/10
Maximum capacitive load	µF	48	163	140
Incandescent lamps				
Incandescent lamps	W	2000	1380	2500
Halogen lamp, 230 V	W	2000	1380	2500
LV halogen lamp with conventional transformer (inductive)	VA	¹⁾	500	500
T5/T8 fluorescent lamps				
Uncorrected	VA	2000	1380	2500
Parallel corrected (at max. possible C)	W	25 x 58	1380	1300
DUO circuit	VA	2000	1380	2500
ECG Osram QTI 1 x 28/54 W	Unit(s)	59	22	59
ECG Osram QTP 1 x 18/24/36 W	Unit(s)	13	9	31
ECG Osram QTP 1 x 58 W	Unit(s)	10	6	21
ECG Osram QTP 2 x 18/24/58 W; 3 x 18 W; 4 x 18 W	Unit(s)	5	2	9
Compact lamps				
Uncorrected	VA	2000	1380	1600
Parallel corrected (at max. possible C)	W	920	1380	1100
ECG Osram Duluxtronics DT	Unit(s)	13	9	25
Mercury-vapor lamps				
ECG Osram PTI 35/220-240S	Unit(s)	8	4	14
ECG Osram PTI 70/220-240S	Unit(s)	5	2	8

¹⁾ On request.

For complete technical specifications, see:

<http://www.siemens.com/gamma-td>.

Technical specifications*Load data for shutter/blind actuators per channel*

		N 521 shutter/blind actuators	N 523/02 shutter/blind actuators N 523/03 roller shutter actuators N 523/04 shutter/blind actuators N 523/11 shutter/blind actuators	N 522/03 shutter/blind actuators	N 524 shutter/blind actuators	UP 520 shutter/blind actuators UP 520/11 shutter/blind actuators	UP 520/31 shutter/blind actuators	GE 521/02 shutter/blind switches
Contact current								
Rated current	A	6 (AC)	6 (AC)	8 (AC)	1 (DC)	6 (AC)	6 (AC)	6 (AC)
AC3 operation (p.f. $\phi = 0.45$)	VA	500	200	200	200	500	1000	500
Contact voltage								
Rated voltage	V	230 AC	230 AC	230 AC	24 DC	230 AC	230 AC	230 AC
Service life								
Mechanical service life Switching operations in millions		50	20	20	20	10	¹⁾	50
Electrical service life Switching operations in millions		0.1	0.1	0.1	0.1	0.1	¹⁾	0.1
Power loss								
Max. power loss per device	W	1.3	10.5	¹⁾	¹⁾	¹⁾	¹⁾	¹⁾
Switching capacities/load types, loads								
Resistive load	W	1380	1380	1840	24	1380	¹⁾	1380
Minimum switching capacity	V/mA	24/10	5/10	5/10	5/10	24/10	¹⁾	24/10
DC switching capacity	V/A	30/10	24/8	24/8	24/8	30/10	¹⁾	30/10

¹⁾ On request.

For complete technical specifications, see:

<http://www.siemens.com/gamma-td>.

Technical Information

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Order information

Trademarks

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.

Ordering special designs

When ordering products that differ from the standard designs, the Order No. in the catalog must be supplemented by a "-Z"; the required characteristics must then be specified either by means of brief alphanumeric data or in plain text.

Ordering very small quantities

When ordering very small quantities, the cost of order processing often exceeds the order value. We therefore recommend that you combine several small orders. Where this is not possible, please note that we are obliged to make a small processing charge: for orders with a net goods value of less than € 100.– we charge a € 15.– supplement to cover our order processing and invoicing costs.

Internet

Visit us on the Internet. Our addresses are as follows:

- For Building Technologies:
<http://www.siemens.com/buildingtechnologies>
- For Electrical Installation Technology:
<http://www.siemens.com/e-installation>
- For the offline mall CA 01:
<http://www.siemens.com/automation/ca01>
- For the online mall:
<http://www.siemens.com/automation/mall>

Notes

All technical data, dimensions and weights are subject to change without notice unless otherwise specified on the pages of this catalog. All dimensions are specified in mm, the illustrations are for reference purposes only.

The technical data are for general information. The instruction manuals and the instructions on the products must be observed during assembly, operation and maintenance.

Explanations on the Selection and Ordering Data

DT (delivery time class)	LK	Meaning	Preferred types are device types that can be delivered immediately ex works, i.e. they are dispatched within 24 hours.
	▶	preferred type	If ordered in normal quantities, the products are usually delivered within the specified delivery times, calculated from the date we receive your order.
	A	two workdays	In exceptional cases, delivery times may vary from those specified.
	B	one week	The delivery times are valid ex works from Siemens AG (products ready for dispatch).
	C	three weeks	Shipping times depend on the destination and the method of shipping. The standard shipping time for Germany is one day.
	D	six weeks	The delivery time classes specified in the catalog are valid as of 10/2008 and are constantly being optimized. For more up-to-the-minute information, please visit our site at: http://www.siemens.com/automation/mall .
	X	on request	
PU (price unit)	The PU column (price unit) specifies the quantity to which the price and weight refer.		
PS/P. unit (packaging size/ packaging unit)	The first digit in the PS/P. unit column (packaging size/packaging unit) indicates the minimum order quantity. You can only order this specified quantity or a multiple thereof.		
	The second digit in the PS/P. unit column (packaging size/packaging unit) specifies the number of units contained in larger packaging (e.g. in a carton). You must order this quantity or a multiple thereof if you want the item to be delivered in a larger packaging quantity. Examples:		
	PS/P. unit	Significance	
	1		You can order one item or a multiple thereof.
	5		For example, five units are packed in a bag. Because the bags cannot be opened, you can only order a multiple of the quantity contained in the bag: 5, 10, 15, 20 etc.
	5/100		One carton contains (for example) 20 bags, each containing 5 units, i.e. a total of 100 units. If only cartons are available for delivery, you need to order a multiple of the carton quantity: 100, 200, 300, etc. Ordering a quantity of 220 units, would produce the following delivery: two cartons, each containing 100 units (= 200 units) and 4 bags, each containing 5 units (= 20 units).
PG (price group)	Each product is assigned to a price group.		
Weight	The value specified in the Weight column specifies the weight in kg for the quantity specified in the PU column (price unit).		
Dimensions	Unless stated otherwise, all dimensions are specified in mm.		

Siemens contacts on the World Wide Web

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Local Partners Worldwide

Get ready

Are you looking for a local contact to help you with questions regarding Siemens Automation and Drives products, solutions and services?

O.K. First, please select the city nearest to your location:

*(or to select a different country click here)

Basin

Now select the appropriate team who you would like to deal with your enquiry:

Sales

Next >

SS Contact

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At

<http://www.siemens.com/automation/partner>

you can find details of Siemens contact partners worldwide responsible for particular technologies.

You can obtain in most cases a contact partner for

- Technical Support,
- Spare parts/repairs,
- Service,
- Training,
- Sales or
- Consultation/engineering.

You start by selecting a

- Country,
- Product or
- Sector.

By further specifying the remaining criteria you will find exactly the right contact partner with his/her respective expertise.

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Select an area of interest | Select city | Your contacts

Sectors Search a Sector

Which sector is your question regarding?

12/22 Sectors

- ☒ Video Systems, Visualization Systems
- ☐ Electronic Microscopy
- ☐ Material Flow Controlling, Distribution and Logistics
- ☐ Assembly Control
- ☐ Paper Machines
- ☐ Production Automation in the Automotive Industry and Suppliers
- ☐ Production Logistics and Control Systems
- ☐ Production Machines: Textiles, Plastics, Metal Forming, Weld, Glass, Ceramic processing, Glass processing, Packaging, Printing, Coatings
- ☐ Process Control Systems
- ☐ Testing/Print Assembly

* This list contains industry sectors concerned by Siemens Automation and Drives products and solutions

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Local Partners Worldwide

Please select a Siemens product group

Select an area of interest | Select city | Your contacts

Product Catalogue Search a Product

Which product does your question refer to?

24/3 Product Catalogue

- ☒ Drive Technology
- ☐ Automation systems
- ☐ Communication Networks
- ☐ Low-Voltage Controls
- ☐ Electrical Installation Technology
- ☐ Process automation
- ☐ Sensor, measuring and testing technology
- ☐ Power supplies
- ☐ Safety systems - Safety Integrated
- ☐ Systems, solutions and products for accessories

* This list contains products and solutions provided by Siemens Automation and Drives

Please select the team who you would like to deal with your enquiry:

Sales

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SS Contact

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Appendix

Online Services

Information and ordering
in the Internet and on CD-ROM

Siemens Industry Automation and Drive Technologies in the WWW



A detailed knowledge of the range of products and services available is essential when planning and configuring automation systems. It goes without saying that this information must always be fully up-to-date.

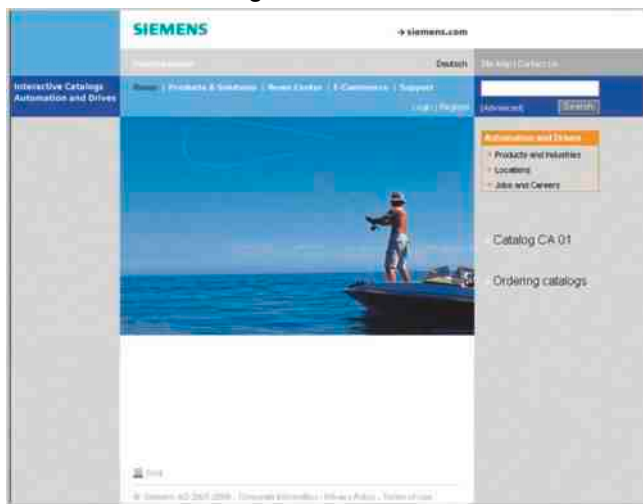
Siemens Industry Automation and Drive Technologies has therefore built up a comprehensive range of information in the World Wide Web, which offers quick and easy access to all data required.

Under the address

<http://www.siemens.com/automation>

you will find everything you need to know about products, systems and services.

Product selection using the Offline Mall



Detailed information together with convenient interactive functions:

The Offline Mall CA 01 covers more than 80 000 products and thus provides a full summary of the Siemens Automation and Drives product base.

Here you will find everything that you need to solve tasks in the fields of automation, switchgear, installation and drives. All information is linked into a user interface which is easy to work with and intuitive.

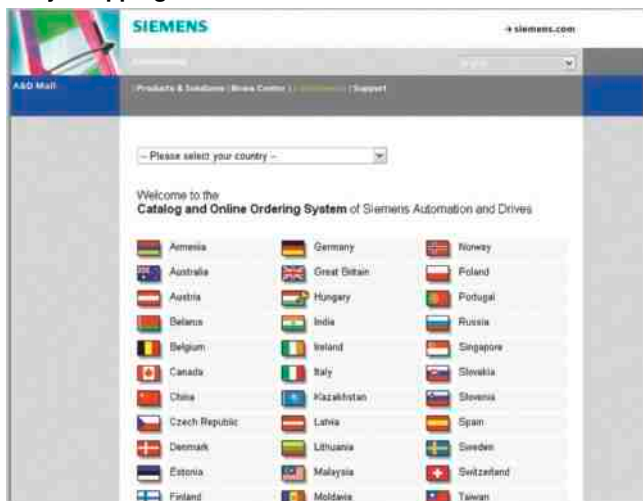
After selecting the product of your choice you can order at the press of a button, by fax or by online link.

Information on the Offline Mall CA 01 can be found in the Internet under

<http://www.siemens.com/automation/ca01>

or on CD-ROM or DVD.

Easy shopping with the Online Mall



The Online Mall is the virtual department store of Siemens AG in the Internet. Here you have access to a huge range of products presented in electronic catalogs in an informative and attractive way.

Data transfer via EDIFACT allows the whole procedure from selection through ordering to tracking of the order to be carried out online via the Internet.

Numerous functions are available to support you.

For example, powerful search functions make it easy to find the required products, which can be immediately checked for availability. Customer-specific discounts and preparation of quotes can be carried out online as well as order tracking and tracing.

Please visit the Online Mall on the Internet under:

<http://www.siemens.com/automation/mall>

Appendix

Customer Support

Our services for every phase of your project



In the face of harsh competition you need optimum conditions to keep ahead all the time:

A strong starting position. A sophisticated strategy and team for the necessary support – in every phase.

Service & Support from Siemens provides this support with a complete range of different services for automation and drives.

In every phase: from planning and startup to maintenance and upgrading.

Our specialists know when and where to act to keep the productivity and cost-effectiveness of your system running in top form.

Online Support



The comprehensive information system available round the clock via Internet ranging from Product Support and Service & Support services to Support Tools in the Shop.

<http://www.siemens.com/automation/service&support>

Technical Support



Competent consulting in technical questions covering a wide range of customer-oriented services for all our products and systems.

Tel.: +49 (0)180 50 50 222

Fax: +49 (0)180 50 50 223

(0.14 €/min from a German land-line network, mobile telephone prices may vary)

<http://www.siemens.com/automation/support-request>

Technical Consulting



Support in the planning and designing of your project from detailed actual-state analysis, target definition and consulting on product and system questions right to the creation of the automation solution.¹⁾

Configuration and Software Engineering



Support in configuring and developing with customer-oriented services from actual configuration to implementation of the automation project.¹⁾

Service on Site



With Service On Site we offer services for startup and maintenance, essential for ensuring system availability.

In Germany

+49 (0)180 50 50 444¹⁾

(0.14 €/min from a German land-line network, mobile telephone prices may vary)

Repairs and Spare Parts



In the operating phase of a machine or automation system we provide a comprehensive repair and spare parts service ensuring the highest degree of operating safety and reliability.

In Germany

+49 (0)180 50 50 446¹⁾

(0.14 €/min from a German land-line network, mobile telephone prices may vary)

Optimization and Upgrading



To enhance productivity and save costs in your project we offer high-quality services in optimization and upgrading.¹⁾

¹⁾ For country-specific telephone numbers go to our Internet site at: <http://www.siemens.com/automation/service&support>.

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4AC2						
4AC2 402	6/9, 12/7	B		1	1	027
5TC1						
5TC1 230	17/19	▶		1	1	024
5TC1 231	17/21	▶		1	1	024
5TC1 232	17/15	A		1	1	024
5TC1 233	17/15	A		1	1	024
5TC1 290	17/23	▶		1	1	024
5TC1 291	17/23	A		1	1	024
5TC1 293	17/23	▶		1	1	024
5TC1 294	17/23	A		1	1	024
5TC7						
5TC7 900	12/6	A		1	1	024
5TC7 901	12/6	A		1	1	024
5TC7 902	12/6	A		1	1	024
5TG1 1						
5TG1 101-0	1/26	▶		1	1	021
5TG1 101-1	1/26, 1/27	▶		1	1	021
5TG1 101-2	1/26, 1/27	▶		1	1	021
5TG1 101-3	1/26, 1/27	▶		1	1	021
5TG1 101-4	1/26	▶		1	1	021
5TG1 102-0	1/26	▶		1	1	021
5TG1 102-1	1/26, 1/27	▶		1	1	021
5TG1 102-2	1/26, 1/27	A		1	1	021
5TG1 102-3	1/26, 1/27/	▶		1	1	021
5TG1 102-4	1/26	▶		1	1	021
5TG1 103-0	1/26	A		1	1	021
5TG1 103-1	1/26, 1/27	A		1	1	021
5TG1 103-2	1/26, 1/27	A		1	1	021
5TG1 103-3	1/26, 1/27	A		1	1	021
5TG1 103-4	1/26	A		1	1	021
5TG1 104-0	1/26	A		1	1	021
5TG1 104-1	1/26, 1/27	A		1	1	021
5TG1 104-2	1/26, 1/27	A		1	1	021
5TG1 104-3	1/26, 1/27	A		1	1	021
5TG1 104-4	1/26	A		1	1	021
5TG1 111-0	1/24	▶		1	1/10	021
5TG1 111-1	1/24	▶		1	1/10	021
5TG1 111-2	1/24	A		1	1/10	021
5TG1 112-0	1/24	A		1	1/10	021
5TG1 112-1	1/24	A		1	1/10	021
5TG1 112-2	1/24	A		1	1/10	021
5TG1 113-0	1/24	A		1	1/10	021
5TG1 113-1	1/24	▶		1	1/10	021
5TG1 113-2	1/24	A		1	1/10	021
5TG1 114-0	1/24	A		1	1/10	021
5TG1 114-1	1/24	A		1	1/10	021
5TG1 114-2	1/24	A		1	1/10	021
5TG1 115-0	1/24	A		1	1/3	021
5TG1 115-1	1/24	A		1	1/3	021

Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5TG1 115-2	1/24	A		1	1/3	021
5TG1 121-0	1/27	▶		1	1	021
5TG1 122-0	1/27	▶		1	1	021
5TG1 123-0	1/27	▶		1	1	021
5TG1 124-0	1/27	▶		1	1	021
5TG1 125-0	1/27	▶		1	1	021
5TG1 125-1	1/27	▶		1	1	021
5TG1 125-2	1/27	▶		1	1	021
5TG1 125-3	1/27	▶		1	1	021
5TG1 141	1/23	▶		1	1/10	021
5TG1 142	1/23	▶		1	1/10	021
5TG1 143	1/23	A		1	1/10	021
5TG1 144	1/23	A		1	1/10	021
5TG1 145	1/23	A		1	1/5	021
5TG1 151	1/23	▶		1	1/10	021
5TG1 152	1/23	A		1	1/10	021
5TG1 153	1/23	A		1	1/10	021
5TG1 154	1/23	A		1	1/10	021
5TG1 155	1/23	A		1	1/5	021
5TG1 161	1/23	▶		1	1/10	021
5TG1 162	1/23	▶		1	1/10	021
5TG1 163	1/23	A		1	1/10	021
5TG1 164	1/23	A		1	1/10	021
5TG1 165	1/23	A		1	1/5	021
5TG1 171	1/23	▶		1	1/10	021
5TG1 172	1/23	▶		1	1/10	021
5TG1 173	1/23	A		1	1/10	021
5TG1 174	1/23	A		1	1/10	021
5TG1 175	1/23	A		1	1/5	021
5TG1 177	1/23	▶		1	1/10	021
5TG1 178	1/23	▶		1	1/10	021
5TG1 180	1/23	▶		1	1/10	021
5TG1 181	1/23	▶		1	1/10	021
5TG1 182	1/23	▶		1	1/10	021
5TG1 183	1/23	A		1	1/10	021
5TG1 184	1/23	A		1	1/10	021
5TG1 185	1/23	▶		1	1/10	021
5TG1 186	1/23	▶		1	1/10	021
5TG1 187	1/23	A		1	1/10	021
5TG1 188-1	1/23	A		1	1/10	021
5TG1 2						
5TG1 201	1/25	▶		1	1	021
5TG1 201-1	1/25	▶		1	1	021
5TG1 201-2	1/25	▶		1	1	021
5TG1 201-3	1/25	▶		1	1	021
5TG1 201-4	1/25	▶		1	1	021
5TG1 202	1/25	▶		1	1	021
5TG1 202-1	1/25	▶		1	1	021
5TG1 202-2	1/25	▶		1	1	021
5TG1 202-3	1/25	▶		1	1	021

* You can order this quantity or a multiple thereof.

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Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5TG1 202-4	1/25	▶		1	1	021
5TG1 203	1/25	▶		1	1	021
5TG1 203-1	1/25	▶		1	1	021
5TG1 203-2	1/25	▶		1	1	021
5TG1 203-3	1/25	▶		1	1	021
5TG1 203-4	1/25	▶		1	1	021
5TG1 204	1/25	▶		1	1	021
5TG1 204-1	1/25	▶		1	1	021
5TG1 204-2	1/25	▶		1	1	021
5TG1 204-3	1/25	▶		1	1	021
5TG1 204-4	1/25	▶		1	1	021
5TG1 205	1/25	▶		1	1	021
5TG1 205-1	1/25	▶		1	1	021
5TG1 205-2	1/25	▶		1	1	021
5TG1 205-3	1/25	▶		1	1	021
5TG1 205-4	1/25	▶		1	1	021
5TG1 220	17/11	A		1	1/10	021
5TG1 250	17/11	▶		1	1/10	021
5TG1 3						
5TG1 321	1/29	▶		1	1/10	021
5TG1 321-1	1/29	▶		1	1/10	021
5TG1 322	1/29	▶		1	1/10	021
5TG1 322-1	1/29	▶		1	1/10	021
5TG1 323	1/29	A		1	1/10	021
5TG1 323-1	1/29	▶		1	1/10	021
5TG1 324	1/29	A		1	1/10	021
5TG1 324-1	1/29	▶		1	1/10	021
5TG1 325	1/29	A		1	1/5	021
5TG1 325-1	1/29	▶		1	1/5	021
5TG1 328	1/29	A		1	1/10	021
5TG1 328-1	1/29	▶		1	1/10	021
5TG1 330	17/11	▶		1	1/10	021
5TG1 361	1/29	A		1	1/10	021
5TG1 362	1/29	A		1	1/10	021
5TG1 363	1/29	A		1	1/10	021
5TG1 364	1/29	A		1	1/10	021
5TG1 365	1/29	A		1	1/5	021
5TG1 368	1/29	A		1	1/10	021
5TG1 370	17/11	A		1	1/10	021
5TG1 5						
5TG1 510	17/11	A		1	1/5	021
5TG1 511	1/30	▶		1	1/5	021
5TG1 512	1/30	▶		1	1/5	021
5TG1 513	1/30	▶		1	1/5	021
5TG1 514	1/30	A		1	1/5	021
5TG1 515	1/30	A		1	1/5	021
5TG1 7						
5TG1 701-1	1/28	A		1	1/10	021
5TG1 741-1	1/28	A		1	1/10	021
5TG1 761	1/28	A		1	1/10	021

Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5TG1 763	1/28	A		1	1/10	021
5TG1 764	1/28	A		1	1/10	021
5TG1 770	17/11	A		1	1/10	021
5TG1 8						
5TG1 801	1/28	▶		1	1/10	021
5TG1 802	1/28	A		1	1/10	021
5TG1 803	1/28	A		1	1/10	021
5TG1 804	1/28	A		1	1/10	021
5TG1 810	17/11	A		1	1/10	021
5TG1 825	1/31	▶		1	1/5	021
5TG1 826	1/31	▶		1	1/5	021
5TG1 831	1/28	A		1	1/10	021
5TG1 832	1/28	A		1	1/10	021
5TG1 833	1/28	A		1	1/10	021
5TG1 834	1/28	A		1	1/10	021
5TG1 840	17/11	A		1	1/10	021
5TG1 861	1/28	A		1	1/10	021
5TG1 862	1/28	A		1	1/10	021
5TG1 863	1/28	A		1	1/10	021
5TG1 864	1/28	A		1	1/10	021
5TG1 870	17/11	A		1	1/10	021
5TG2						
5TG2 551-0	1/22	▶		1	1/10	021
5TG2 551-1	1/22	A		1	1/10	021
5TG2 551-3	1/22	▶		1	1/10	021
5TG2 551-4	1/22	A		1	1/10	021
5TG2 551-6	1/22	▶		1	1/10	021
5TG2 551-7	1/22	A		1	1/10	021
5TG2 552-0	1/22	▶		1	1/10	021
5TG2 552-1	1/22	A		1	1/10	021
5TG2 552-2	1/22	A		1	1/10	021
5TG2 552-3	1/22	▶		1	1/10	021
5TG2 552-4	1/22	A		1	1/10	021
5TG2 552-5	1/22	A		1	1/10	021
5TG2 552-6	1/22	▶		1	1/10	021
5TG2 552-7	1/22	A		1	1/10	021
5TG2 552-8	1/22	A		1	1/10	021
5TG2 553-0	1/22	▶		1	1/10	021
5TG2 553-1	1/22	▶		1	1/10	021
5TG2 553-2	1/22	A		1	1/10	021
5TG2 553-3	1/22	▶		1	1/10	021
5TG2 553-6	1/22	A		1	1/10	021
5TG2 554-0	1/22	▶		1	1/10	021
5TG2 554-1	1/22	A		1	1/10	021
5TG2 554-2	1/22	A		1	1/10	021
5TG2 554-3	1/22	▶		1	1/10	021
5TG2 554-6	1/22	A		1	1/10	021
5TG2 555-0	1/22	A		1	1/5	021
5TG2 555-3	1/22	A		1	1/5	021
5TG2 555-6	1/22	A		1	1/5	021

* You can order this quantity or a multiple thereof.

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Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5TG2 558	17/11	▶		1	1/10	021
5TG2 581-0	1/22	▶		1	1/10	021
5TG2 581-1	1/22	A		1	1/10	021
5TG2 582-0	1/22	▶		1	1/10	021
5TG2 582-1	1/22	A		1	1/10	021
5TG2 582-2	1/22	A		1	1/10	021
5TG2 583-0	1/22	▶		1	1/10	021
5TG2 583-1	1/22	A		1	1/10	021
5TG2 583-2	1/22	A		1	1/10	021
5TG2 584-0	1/22	A		1	1/10	021
5TG2 584-1	1/22	A		1	1/10	021
5TG2 584-2	1/22	A		1	1/10	021
5TG2 585-0	1/22	A		1	1/5	021
5TG2 861	1/31	A		1	1/5	021
5TG2 862	1/31	A		1	1/3	021
5TG2 863	1/31	A		1	1/2	021
5TG2 901	1/31	▶		1	1/5	021
5TG2 902	1/31	▶		1	1/3	021
5TG2 903	1/31	A		1	1/2	021
5Wg1 1						
5WG1 110-2AB03	14/4	▶		1	1	030
5WG1 110-2AB11	14/4	▶		1	1	030
5WG1 114-2AB02	14/4	▶		1	1	030
5WG1 115-3AB01	1/11	▶		1	1	022
5WG1 115-3AB11	1/11	▶		1	1	022
5WG1 115-3AB21	1/11	▶		1	1	022
5WG1 115-3AB31	1/11	▶		1	1	022
5WG1 116-2AB01	1/9, 14/5	▶		1	1	030
5WG1 116-2AB11	1/9, 14/5	▶		1	1	030
5WG1 116-2AB21	1/9, 14/5	▶		1	1	030
5WG1 116-2AB31	1/9, 14/5	▶		1	1	030
5WG1 117-2AB11	14/4	▶		1	1	030
5WG1 120-1AB02	14/10	▶		1	1	030
5WG1 125-1AB01	14/9	▶		1	1	030
5WG1 125-1AB11	14/9	▶		1	1	030
5WG1 125-1AB21	14/9	▶		1	1	030
5WG1 140-1AB03	14/13	▶		1	1	030
5WG1 140-1AB13	14/13	▶		1	1	030
5WG1 140-7AU02	11/20	C		1	1	030
5WG1 140-7AU22	11/20	C		1	1	030
5WG1 141-1AB01	5/13, 11/7	▶		1	1	030
5WG1 141-4AB01	11/7	▶		1	1	030
5WG1 142-2AB01	11/11	B		1	1	022
5WG1 142-2EB01	11/9	B		1	1	022
5WG1 146-1AB01	11/5, 14/13, 14/15	▶		1	1	030
5WG1 146-2AB01	11/11	B		1	1	022
5WG1 146-2AB11	11/11	▶		1	1	022
5WG1 146-2AB21	11/11	B		1	1	022
5WG1 146-2AB71	11/11	C		1	1	022

Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5WG1 146-2EB01	11/9	B		1	1	022
5WG1 146-2EB11	11/9	▶		1	1	022
5WG1 146-2EB21	11/9	B		1	1	022
5WG1 146-2EB71	11/9	C		1	1	022
5WG1 148-1AB02	11/11	▶		1	1	030
5WG1 148-1AB04	11/11	B		1	1	030
5WG1 148-1AB11	11/9	▶		1	1	030
5WG1 148-1AB21	11/5, 14/15	▶		1	1	030
5WG1 151-1AB01	1/43, 11/5, 14/15	A		1	1	030
5WG1 190-7AU01	11/20	X		1	1	030
5WG1 190-8AB01	15/5	▶		1	5	030
5WG1 190-8AB02	15/5	▶		1	5	030
5WG1 190-8AB03	15/5	▶		1	5	030
5WG1 190-8AB04	15/5	▶		1	5	030
5WG1 190-8AB11	15/5	B		1	5	030
5WG1 190-8AB12	15/5	B		1	5	030
5WG1 190-8AB13	15/5	B		1	5	030
5WG1 190-8AB14	15/5	B		1	5	030
5WG1 190-8AB21	15/5	B		1	5	030
5WG1 190-8AB22	15/5	B		1	5	030
5WG1 190-8AB23	15/5	B		1	5	030
5WG1 190-8AB24	15/5	B		1	5	030
5WG1 190-8AB31	15/5	B		1	5	030
5WG1 190-8AB32	15/5	B		1	5	030
5WG1 190-8AB33	15/5	B		1	5	030
5WG1 190-8AB34	15/5	B		1	5	030
5WG1 190-8AB41	15/5	B		1	5	030
5WG1 190-8AB42	15/5	B		1	5	030
5WG1 190-8AB43	15/5	B		1	5	030
5WG1 190-8AB44	15/5	B		1	5	030
5WG1 190-8AB51	15/5	B		1	5	030
5WG1 190-8AB52	15/5	B		1	5	030
5WG1 190-8AB53	15/5	B		1	5	030
5WG1 190-8AB54	15/5	B		1	5	030
5WG1 190-8AD01	15/6	B		1	1	030
5WG1 191-5AB01	15/4	▶		1	1	030
5WG1 191-5AB11	15/4	▶		1	1	030
5WG1 192-8AA01	15/3	X		1	5	030
5WG1 193-8AB01	15/3	▶		1	25	030
5WG1 195-3AB01	1/35	D		1 m	1 m	030
5WG1 195-8AB01	1/35	D		1	1	030
5WG1 195-8AB11	1/35	D		1	1	030
5WG1 195-8AB21	1/35	D		1	1	030
5WG1 195-8AB31	1/35	D		1	1	030
5WG1 195-8AB41	1/35	D		1	1	030
5WG1 195-8AB51	1/35	D		1	1	030
5WG1 196-2AB01	14/4	B		1	10	030
5WG1 197-8AB01	1/35	D		1 m	1 m	030
5WG1 198-8AB01	1/35	D		1	1	030

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Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5Wg1 2						
5WG1 220-2AB02	3/5	▶		1	1	030
5WG1 220-2AB03	3/5	▶		1	1	030
5WG1 220-2AB13	3/5	▶		1	1	030
5WG1 221-2AB01	1/5	B		1	1	022
5WG1 221-2AB11	1/5	▶		1	1	022
5WG1 221-2AB21	1/5	B		1	1	022
5WG1 221-2AB31	1/5	A		1	1	022
5WG1 221-2EB01	1/5	B		1	1	022
5WG1 221-2EB11	1/5	▶		1	1	022
5WG1 221-2EB21	1/5	B		1	1	022
5WG1 221-2EB31	1/5	A		1	1	022
5WG1 222-2AB01	1/5	B		1	1	022
5WG1 222-2AB11	1/5	▶		1	1	022
5WG1 222-2AB21	1/5	B		1	1	022
5WG1 222-2AB31	1/5	A		1	1	022
5WG1 222-2EB01	1/5	B		1	1	022
5WG1 222-2EB11	1/5	▶		1	1	022
5WG1 222-2EB21	1/5	B		1	1	022
5WG1 222-2EB31	1/5	A		1	1	022
5WG1 223-2AB01	1/5	B		1	1	022
5WG1 223-2AB11	1/5	▶		1	1	022
5WG1 223-2AB21	1/5	B		1	1	022
5WG1 223-2AB31	1/5	A		1	1	022
5WG1 230-2AB02	1/15	B		1	1	022
5WG1 230-2AB12	1/15	B		1	1	022
5WG1 230-2AB22	1/15	B		1	1	022
5WG1 230-2AB72	1/15	B		1	1	022
5WG1 230-2EB11	1/15	B		1	1	022
5WG1 230-2EB21	1/15	B		1	1	022
5WG1 231-2AB03	1/14, 7/9	B		1	1	022
5WG1 231-2AB13	1/14, 7/9	B		1	1	022
5WG1 231-2AB23	1/14, 7/9	B		1	1	022
5WG1 231-2AB73	1/14, 7/9	B		1	1	022
5WG1 231-2EB13	1/14, 7/9	B		1	1	022
5WG1 231-2EB23	1/14, 7/9	B		1	1	022
5WG1 233-2AB01	1/17, 11/13	B		1	1	022
5WG1 233-2AB11	1/17, 11/13	B		1	1	022
5WG1 233-2AB21	1/17, 11/13	B		1	1	022
5WG1 233-2AB71	1/17, 11/13	B		1	1	022
5WG1 234-2AB01	1/17, 11/13	B		1	1	022
5WG1 234-2AB11	1/17, 11/13	B		1	1	022
5WG1 234-2AB21	1/17, 11/13	B		1	1	022
5WG1 234-2AB71	1/17, 11/13	B		1	1	022
5WG1 235-2AB01	1/17, 11/13	B		1	1	022
5WG1 235-2AB11	1/17, 11/13	B		1	1	022
5WG1 235-2AB21	1/17, 11/13	B		1	1	022
5WG1 235-2AB71	1/17, 11/13	B		1	1	022
5WG1 237-2AB11	7/7	▶		1	1	022
5WG1 237-2AB21	7/7	B		1	1	022

Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5WG1 237-2AB31	7/7	A		1	1	022
5WG1 237-2EB11	7/5	A		1	1	022
5WG1 237-2EB21	7/5	B		1	1	022
5WG1 237-2EB31	7/5	A		1	1	022
5WG1 237-2FB11	7/5	A		1	1	022
5WG1 237-2FB21	7/5	B		1	1	022
5WG1 237-2FB31	7/5	A		1	1	022
5WG1 241-2AB01	1/6	B		1	1	022
5WG1 241-2AB11	1/6	▶		1	1	022
5WG1 241-2AB21	1/6	B		1	1	022
5WG1 241-2AB71	1/6	A		1	1	022
5WG1 242-2AB01	1/6	B		1	1	022
5WG1 242-2AB11	1/6	B		1	1	022
5WG1 242-2AB21	1/6	B		1	1	022
5WG1 242-2AB71	1/6	B		1	1	022
5WG1 243-2AB01	1/6	B		1	1	022
5WG1 243-2AB11	1/6	▶		1	1	022
5WG1 243-2AB21	1/6	B		1	1	022
5WG1 243-2AB71	1/6	A		1	1	022
5WG1 244-2AB01	1/6	B		1	1	022
5WG1 244-2AB11	1/6	▶		1	1	022
5WG1 244-2AB21	1/6	B		1	1	022
5WG1 244-2AB71	1/6	B		1	1	022
5WG1 245-2AB01	1/6	B		1	1	022
5WG1 245-2AB11	1/6	▶		1	1	022
5WG1 245-2AB21	1/6	B		1	1	022
5WG1 245-2AB71	1/6	A		1	1	022
5WG1 246-2AB01	1/6	B		1	1	022
5WG1 246-2AB11	1/6	▶		1	1	022
5WG1 246-2AB21	1/6	B		1	1	022
5WG1 246-2AB71	1/6	B		1	1	022
5WG1 250-8AB01	7/8	D		1	1	030
5WG1 251-3AB11	12/6	A		1	1	030
5WG1 251-3AB21	12/6	A		1	1	030
5WG1 252-2AB03	7/7	B		1	1	022
5WG1 252-2AB13	7/7	▶		1	1	022
5WG1 252-2AB23	7/7	B		1	1	022
5WG1 252-2AB73	7/7	A		1	1	022
5WG1 252-2EB01	7/6	B		1	1	022
5WG1 252-2EB11	7/6	▶		1	1	022
5WG1 252-2EB21	7/6	B		1	1	022
5WG1 252-2EB71	7/6	A		1	1	022
5WG1 252-2FB01	7/6	B		1	1	022
5WG1 252-2FB11	7/6	▶		1	1	022
5WG1 252-2FB21	7/6	B		1	1	022
5WG1 252-2FB71	7/6	A		1	1	022
5WG1 252-2HV11	1/14	C		1	1	030
5WG1 252-4AB02	5/18, 12/7	▶		1	1	030
5WG1 253-2AB03	7/8	B		1	1	022
5WG1 253-4AB01	5/18, 12/7	▶		1	1	030

* You can order this quantity or a multiple thereof.

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Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5WG1 254-2AB13	7/8	►		1	1	022
5WG1 254-2AB23	7/8	B		1	1	022
5WG1 254-2AB43	7/8	B		1	1	022
5WG1 254-2EB11	7/6	A		1	1	022
5WG1 254-2EB21	7/6	B		1	1	022
5WG1 254-2EB41	7/6	B		1	1	022
5WG1 254-2FB11	7/6	A		1	1	022
5WG1 254-2FB21	7/6	B		1	1	022
5WG1 254-2FB41	7/6	B		1	1	022
5WG1 254-3EY02	5/17, 7/4, 12/7, 12/8	►		1	1	030
5WG1 254-4AB01	5/18, 12/7	►		1	1	030
5WG1 255-2AB01	12/5	B		1	1	022
5WG1 255-2AB02	12/5	B		1	1	022
5WG1 255-2AB11	12/5	►		1	1	022
5WG1 255-2AB12	12/5	►		1	1	022
5WG1 255-2AB21	12/5	B		1	1	022
5WG1 255-2AB22	12/5	B		1	1	022
5WG1 255-2AB71	12/5	A		1	1	022
5WG1 255-2AB72	12/5	A		1	1	022
5WG1 255-4AB01	4/6, 5/13, 5/17	►		1	1	030
5WG1 255-4AB02	4/6, 5/13, 5/17	C		1	1	030
5WG1 255-4AB11	5/16, 12/7	B		1	1	030
5WG1 255-4AB12	5/16, 12/7	B		1	1	030
5WG1 256-2AB01	12/5	B		1	1	022
5WG1 256-2AB02	12/5	B		1	1	022
5WG1 256-3AB01	9/5, 12/9	X		1	1	030
5WG1 257-2AB13	12/5	B		1	1	022
5WG1 257-2AB14	12/5	B		1	1	022
5WG1 257-2AB21	12/5	B		1	1	022
5WG1 257-2AB22	12/5	B		1	1	022
5WG1 257-2AB41	12/5	B		1	1	022
5WG1 257-2AB42	12/5	B		1	1	022
5WG1 257-3AB01	6/9	B		1	1	030
5WG1 257-3AB11	6/9	B		1	1	030
5WG1 257-3AB21	6/9	B		1	1	030
5WG1 257-3AB31	6/9	B		1	1	030
5WG1 257-3AB41	12/7	B		1	1	030
5WG1 258-1AB02	7/4, 12/8	B		1	1	030
5WG1 258-2AB11	5/17, 12/6	►		1	1	030
5WG1 258-2AB21	5/17, 12/6	►		1	1	030
5WG1 258-2HB11	12/5	►		1	1	022
5WG1 258-2HB12	12/5	B		1	1	022
5WG1 258-2HB21	12/5	B		1	1	022
5WG1 258-2HB22	12/5	B		1	1	022
5WG1 258-2HB31	12/5	C		1	1	022
5WG1 258-2HB32	12/5	C		1	1	022
5WG1 258-3AB11	12/11	B		1	1	030
5WG1 258-3AB21	12/11	B		1	1	030
5WG1 258-3AB31	12/11	B		1	1	030

Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5WG1 258-3AB41	12/11	B		1	1	030
5WG1 258-3EB21	5/17, 12/6	►		1	5	030
5WG1 258-7AB02	12/11	B		1	1	030
5WG1 258-7AB03	12/11	B		1	1	030
5WG1 258-7AB13	12/11	B		1	1	030
5WG1 258-8AB01	12/11	B		1	1	030
5WG1 258-8AB21	12/11	B		1	1	030
5WG1 260-1AB01	3/5	X		1	1	030
5WG1 261-1AB01	3/5	X		1	1	030
5WG1 262-1EB01	3/5	►		1	1	030
5WG1 262-1EB11	3/5	►		1	1	030
5WG1 262-4AB02	3/5	►		1	1	030
5WG1 263-1EB01	3/5	►		1	1	030
5WG1 263-1EB11	3/5	►		1	1	030
5WG1 264-1EB11	3/5	►		1	1	030
5WG1 266-1AB01	4/6, 9/3	B		1	1	030
5WG1 272-2AB01	9/4, 12/8	B		1	1	022
5WG1 272-2AB11	9/4, 12/8	►		1	1	022
5WG1 272-2AB21	9/4, 12/8	B		1	1	022
5WG1 272-2AB71	9/4, 12/8	C		1	1	022
5WG1 281-8AB01	1/7	D		1	1	030
5WG1 282-8AB01	1/7	D		1	1	030
5WG1 283-8AB01	1/7	D		1	1	030
5WG1 284-2AB01	1/7	B		1	1	022
5WG1 284-2AB03	1/7	B		1	1	022
5WG1 284-2EB01	1/18, 11/14	B		1	1	022
5WG1 284-2EB03	1/18, 11/14	B		1	1	022
5WG1 285-2AB11	1/7	►		1	1	022
5WG1 285-2AB21	1/7	B		1	1	022
5WG1 285-2AB41	1/7	B		1	1	022
5WG1 285-2EB11	1/17, 11/14	C		1	1	022
5WG1 285-2EB21	1/17, 11/14	B		1	1	022
5WG1 285-2EB41	1/17	B		1	1	022
5WG1 286-2AB11	1/7	►		1	1	022
5WG1 286-2AB21	1/7	B		1	1	022
5WG1 286-2AB41	1/7	B		1	1	022
5WG1 286-2EB11	1/17, 11/14	C		1	1	022
5WG1 286-2EB21	1/17, 11/14	B		1	1	022
5WG1 286-2EB41	1/17	B		1	1	022
5WG1 287-2AB11	1/7	►		1	1	022
5WG1 287-2AB21	1/7	B		1	1	022
5WG1 287-2AB41	1/7	B		1	1	022
5WG1 287-2EB11	1/18, 11/14	►		1	1	022
5WG1 287-2EB21	1/18, 11/14	B		1	1	022
5WG1 287-2EB41	1/18	B		1	1	022
5WG1 293-8AB00	1/32	B		100	10	022
5WG1 293-8AB01	1/32	B		100	10	022
5WG1 293-8AB02	1/32	B		100	10	022
5WG1 293-8AB03	1/32	B		100	10	022
5WG1 293-8AB04	1/32	B		100	10	022

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Appendix

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Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5WG1 293-8AB05	1/32	B		100	10	022
5WG1 293-8AB06	1/32	B		100	10	022
5WG1 293-8AB07	1/32	B		100	10	022
5WG1 293-8AB08	1/32	B		100	10	022
5WG1 293-8AB10	1/32	B		100	10	022
5WG1 294-8AB01	14/4	B		1	10	030
5Wg1 3						
5WG1 301-1AB01	13/4	▶		1	1	030
5WG1 302-1AB01	13/4	B		1	1	030
5WG1 305-1AB01	13/4	▶		1	1	030
5WG1 341-1AB01	13/4	▶		1	1	030
5WG1 342-1AB01	5/17	B		1	1	030
5WG1 343-1AB01	16/3	B		1	1	030
5WG1 345-1AB01	9/3	▶		1	1	030
5WG1 347-1AB02	13/4	▶		1	1	030
5WG1 350-1AB01	13/4	B		1	1	030
5WG1 350-1EB01	11/5, 13/4, 13/6, 14/15	▶		1	1	030
5WG1 360-1AB01	8/2	B		1	1	030
5WG1 371-5EY01	13/6	▶		1	1	030
5WG1 372-5EY01	13/6	▶		1	1	030
5WG1 372-5EY02	13/6	▶		1	1	030
5WG1 373-5EY01	13/7	▶		1	1	030
5WG1 390-3EY01	13/7	▶		1	1	030
5Wg1 4						
5WG1 420-3AB11	1/37	A		1	2	030
5WG1 420-3AB12	1/37	C		1	2	030
5WG1 421-3AB11	1/37	A		1	2	030
5WG1 421-3AB12	1/37	C		1	2	030
5WG1 422-3AB11	1/37	A		1	2	030
5WG1 422-3AB12	1/37	C		1	2	030
5WG1 425-7AB21	1/37	▶		1	1	030
5WG1 440-7AB01	11/13	▶		1	1	030
5WG1 450-1AB02	11/13	▶		1	1	030
5WG1 490-8AA81	1/37	D		1	1	030
5Wg1 5						
5WG1 502-1AB01	4/6	B		1	1	030
5WG1 510-1AB03	2/5	▶		1	1	030
5WG1 510-1AB04	2/5	▶		1	1	030
5WG1 511-1AB02	2/6	B		1	1	030
5WG1 511-2AB10	2/6, 4/7	▶		1	1	030
5WG1 512-1AB01	2/6	▶		1	1	030
5WG1 512-1AB11	2/5	B		1	1	030
5WG1 512-1AB21	2/5	B		1	1	030
5WG1 520-2AB01	6/7	▶		1	1	030
5WG1 520-2AB11	6/7	▶		1	1	030
5WG1 520-2AB31	6/7	▶			1	
5WG1 521-1AB01	6/6	▶		1	1	030
5WG1 521-4AB02	6/7	▶		1	1	030
5WG1 522-1AB03	6/6	▶		1	1	030
5WG1 523-1AB02	6/6	▶		1	1	030

Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5WG1 523-1AB03	6/6	▶		1	1	030
5WG1 523-1AB04	6/6	▶		1	1	030
5WG1 524-1AB01	6/6	A		1	1	030
5WG1 525-1AB02	5/13	X		1	1	030
5WG1 525-1EB01	5/13, 11/7	▶		1	1	030
5WG1 525-2AB01	5/7	▶		1	1	030
5WG1 525-2AB11	5/7	▶		1	1	030
5WG1 525-2AB31	5/7	▶			1	
5WG1 526-1AB02	4/6, 5/13, 5/17	▶		1	1	030
5WG1 526-1EB02	5/13	▶		1	1	030
5WG1 527-1AB02	5/7	▶		1	1	030
5WG1 528-1AB02	5/7	▶		1	1	030
5WG1 540-5AS01	7/12	B		1	1	030
5WG1 540-5AS11	7/12	A		1	1	030
5WG1 540-8AS01	7/12	A		1	1	030
5WG1 560-7AH01	7/14	▶		1	1	030
5WG1 560-7AH02	7/14	▶		1	1	030
5WG1 561-4AB02	2/6	▶		1	1	030
5WG1 561-7AH01	7/15	B			1	
5WG1 561-7AH02	7/15	B			1	
5WG1 561-7AH03	7/15	B			1	
5WG1 561-7AH04	7/15	B			1	
5WG1 561-8AH01	7/15	B			1	
5WG1 561-8AH02	7/15	B			1	
5WG1 561-8AH03	7/15	B			1	
5WG1 561-8AH04	7/15	B			1	
5WG1 561-8AH05	7/15	B			1	
5WG1 561-8AH06	7/15	B			1	
5WG1 562-1AB01	2/6	▶		1	1	030
5WG1 562-2AB01	2/6	▶		1	1	030
5WG1 562-2AB11	2/6	▶		1	1	030
5WG1 562-2AB31	2/6, 4/7	▶			1	
5WG1 562-7EY01	7/14	A		1	1	030
5WG1 567-1AB01	2/5	▶		1	1	030
5WG1 567-1AB11	2/5	▶		1	1	030
5WG1 567-1AB12	2/5	▶		1	1	030
5WG1 567-1AB21	2/5	▶		1	1	030
5WG1 584-2AB21	1/20	B		1	1	022
5WG1 584-2AB41	1/20	B		1	1	022
5WG1 585-2AB01	1/19	B		1	1	022
5WG1 585-2AB11	1/19, 1/20	▶		1	1	022
5WG1 585-2AB21	1/19	B		1	1	022
5WG1 585-2AB71	1/19	B		1	1	022
5WG1 586-2AB01	1/20	B		1	1	022
5WG1 587-2AB01	1/19	B		1	1	022
5WG1 587-2AB02	1/19	B		1	1	022
5WG1 587-2AB11	1/19	▶		1	1	022
5WG1 587-2AB12	1/19	▶		1	1	022
5WG1 587-2AB21	1/19	B		1	1	022
5WG1 587-2AB22	1/19	B		1	1	022

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Order number index

Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5WG1 587-2AB31	1/19	A		1	1	022
5WG1 587-2AB32	1/19	A		1	1	022
5WG1 588-2AB11	1/36	►		1	1	030
5WG1 588-2AB12	1/36	B			1	
5WG1 588-2AB21	1/36	B		1	1	030
5WG1 588-2AB22	1/36	B			1	
5WG1 588-8AB01	1/36	►		1	1	030
5WG1 588-8AB02	1/36					
5WG1 588-8AB03	1/36					
5WG1 588-8AB04	1/36					
5WG1 588-8AB05	1/36					
5WG1 588-8EB01	1/36	C		1	1	030
5WG1 590-8AH01	7/14	C		1	1	030
5Wg1 6						
5WG1 605-1AB01	4/6, 7/12	►		1	1	030
5WG1 605-1AB11	4/6, 7/12	►		1	1	030
5WG1 611-3AL01	10/4	B		1	1	030
5WG1 611-3AL11	10/4	B		1	1	030
5WG1 611-3AL21	10/4	B		1	1	030
5WG1 611-3AL31	10/4	B		1	1	030
5WG1 611-3AL51	10/4	B		1	1	030
5WG1 611-3AL61	10/4	B		1	1	030
5WG1 631-3AL01	10/6	B		1	1	030
5WG1 631-3AL02	10/6	B		1	1	030
5WG1 631-3AL11	10/6	B		1	1	030
5WG1 631-3AL12	10/6	B		1	1	030
5WG1 631-3AL21	10/6	B		1	1	030
5WG1 631-3AL22	10/6	B		1	1	030
5WG1 631-3AL32	10/6	B		1	1	030
5WG1 631-3AL43	10/6	B		1	1	030
5WG1 631-3AL44	10/6	B		1	1	030
5WG1 631-3AL51	10/6	B		1	1	030
5WG1 631-3AL52	10/6	B		1	1	030
5WG1 631-3AL62	10/6, 11/16	B		1	1	030
5WG1 670-1AB03	2/7, 3/6, 4/6, 7/4, 7/12	►		1	1	030
5Wg1 8						
5WG1 810-0EY01	13/7	B		1	1	030
5WG1 810-8EY01	13/7	B		1	1	030
5WG1 810-8EY02	13/7	B		1	1	030
5WG1 523-1AB11	6/6	►		1	1	030
5Wg1 3						
5WG3 110-2AB01	17/29	►		1	1	030
5WG3 110-2AB11	17/29	B		1	1	030
5WG3 110-8AB01	1/31, 17/11	D		1	1	022
5WG3 110-8AB11	1/31, 17/11	A		1	1	022
5WG3 110-8AB21	1/31, 17/11	D		1	1	022
5WG3 110-8AB71	1/31, 17/11	D		1	1	022
5WG3 140-2AB01	11/15, 17/25	B		1	1	022
5WG3 140-2AB11	11/15, 17/25	►		1	1	022
5WG3 140-2AB21	11/15, 17/25	B		1	1	022

Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
5WG3 140-2AB71	11/15, 17/25	A		1	1	022
5WG3 140-2GB11	11/15, 17/25	►		1	1	022
5WG3 140-2GB21	11/15, 17/25	B		1	1	022
5WG3 140-2GB41	17/25	B		1	1	022
5WG3 140-2HB11	11/15, 17/25	►		1	1	022
5WG3 140-2HB21	11/15, 17/25	B		1	1	022
5WG3 140-2HB31	11/15, 17/25	A		1	1	022
5WG3 141-2AB01	17/30	A		1	1	030
5WG3 210-2AB01	17/9	B		1	1	022
5WG3 210-2AB11	17/9	►		1	1	022
5WG3 210-2AB21	17/9	B		1	1	022
5WG3 210-2AB71	17/9	A		1	1	022
5WG3 210-2GB11	17/9	►		1	1	022
5WG3 210-2GB21	17/9	B		1	1	022
5WG3 210-2GB41	17/9	B		1	1	022
5WG3 210-2HB11	17/9	►		1	1	022
5WG3 210-2HB21	17/9	B		1	1	022
5WG3 210-2HB31	17/9	A		1	1	022
5WG3 211-2AB01	17/9	B		1	1	022
5WG3 211-2AB11	17/9	►		1	1	022
5WG3 211-2AB21	17/9	B		1	1	022
5WG3 211-2AB71	17/9	A		1	1	022
5WG3 211-2GB11	17/9	A		1	1	022
5WG3 211-2GB21	17/9	B		1	1	022
5WG3 211-2GB41	17/9	B		1	1	022
5WG3 211-2HB11	17/9	►		1	1	022
5WG3 211-2HB21	17/9	B		1	1	022
5WG3 211-2HB31	17/9	A		1	1	022
5WG3 221-3HB11	17/10	►		1	1	030
5WG3 222-3HB11	17/10	►		1	1	030
5WG3 255-8AB01	17/23	A		1	1	030
5WG3 260-3AB11	17/21, 17/23	►		1	1	030
5WG3 260-3AB81	17/21, 17/23	B		1	1	030
5WG3 261-3AB11	17/17	►		1	1	030
5WG3 425-7AB21	1/37, 17/12	►		1	1	030
5WG3 425-7AB71	1/37, 17/12	►		1	1	030
5WG3 520-4AB01	17/21	A		1	1	030
5WG3 560-2AB01	17/15, 17/29	►		1	1	030
5WG3 561-4AB01	17/15	►		1	1	030
5WG3 561-4AB11	17/15, 17/26	►		1	1	030
5WG3 564-7AB11	17/16	A		1	1	030
6AV6						
6AV6643-7AC10-0AA0	11/19					
6BK1						
6BK1700-0BA00-0AA1	11/17, 13/11	B		1	1	475
6ED1						
6ED1 050-1AA00-0AE6	13/11	A		1	1	2A0
6ED1 050-1AA00-0BE6	13/11	A		1	1	2A0

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Appendix

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Order No.	Page	DT	Price per PU	PU Unit(s)	PS*/ P.unit Unit(s)	PG
6ED1 052-1FB00-0BA5	13/10	A		1	1	200
6ED1 052-1MD00-0BA5	13/10	A		1	1	200
6ED1 055-1FB00-0BA1	13/10	A		1	1	200
6ED1 055-1MA00-0BA0	13/10	A		1	1	200
6ED1 055-1MB00-0BA1	13/10	A		1	1	200
6ED1 055-1MD00-0BA0	13/10	A		1	1	200
6ED1 055-1MM00-0BA0	13/11	A		1	1	200
6ED1 056-5CA00-0BA0	13/11	A		1	1	200
6ED1 057-1AA00-0BA0	13/11	A		1	1	200
6ED1 058-0BA01-0YA0	13/11	A		1	1	2A0
6EP1						
6EP1 321-1SH02	13/11	►		1	1	401
6EP1 331-1SH02	13/11	►		1	1	401
7KT1						
7KT1 162	16/4	B		1	1	027
7KT1 165	16/4	B		1	1	027
ZNX						
ZNX:63101-32-70	1/42					
ZNX:63101-32-71	1/42					
ZNX:63101-32-72	1/42					
ZNX:63101-32-73	1/42					
ZNX:63101-32-74	1/42					
ZNX:63101-32-75	1/42					
ZNX:63101-32-76	1/42					
ZNX:63101-32-77	1/42					
ZNX:63101-32-78	1/42					
ZNX:63101-32-79	1/42					
ZNX:63101-32-80	1/42					
ZNX:63101-32-81	1/42					
ZNX:63101-32-82	1/42					
ZNX:63101-32-83	1/42					
ZNX:63101-32-84	1/42					
ZNX:63101-32-85	1/42					

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The "General Terms of Payment" as well as the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry" shall apply.

For software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office in Germany" shall apply.

For customers with a seat or registered office outside of Germany

The "General Terms of Payment" as well as the "General Conditions for Supplies of Siemens Automation and Drives for Customers with a Seat or registered Office outside of Germany" shall apply.

For software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office outside of Germany" shall apply.

General

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches only apply to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the corresponding pages, - especially with regard to data, dimensions and weights given - these are subject to change without prior notice.

The prices are in € (Euro) ex works, exclusive packaging.

The sales tax (value added tax) is not included in the prices. It shall be debited separately at the respective rate according to the applicable legal regulations.

Prices are subject to change without prior notice. We will debit the prices valid at the time of delivery.

Surcharges will be added to the prices of products that contain silver, copper, aluminum, lead and/or gold if the respective basic official prices for these metals are exceeded. These surcharges will be determined based on the official price and the metal factor of the respective product.

The surcharge will be calculated on the basis of the official price on the day prior to receipt of the order or prior to the release order. The metal factor determines the official price as of which the metal surcharges are charged and the calculation method used. The metal factor, provided it is relevant, is included with the price information of the respective products.

Terms and conditions of sale and delivery Export regulations

An exact explanation of the metal factor and the text of the Comprehensive Terms and Conditions of Sale and Delivery are available free of charge from your local Siemens business office under the following Order Nos.:

- 6ZB5310-0KR30-0BA1
(for customers based in Germany)
- 6ZB5310-0KS53-0BA1
(for customers based outside Germany)

or download them from the Internet

<http://www.siemens.com/automation/mail>

(Germany: A&D Mall Online-Help System)

Export regulations

The products listed in this catalog / price list may be subject to European / German and/or US export regulations.

Therefore, any export requiring a license is subject to approval by the competent authorities.

According to current provisions, the following export regulations must be observed with respect to the products featured in this catalog / price list:

AL	Number of the <u>German Export List</u> Products marked other than "N" require an export license. In the case of software products, the export designations of the relevant data medium must also be generally adhered to. Goods labeled with an "<u>AL" not equal to "N"</u> are subject to a European or German export authorization when being exported out of the EU.
ECCN	<u>Export Control Classification Number</u> Products marked other than "N" are subject to a reexport license to specific countries. In the case of software products, the export designations of the relevant data medium must also be generally adhered to. Goods labeled with an "<u>ECCN" not equal to "N"</u> are subject to a US re-export authorization.

Even without a label or with an "AL: N" or "ECCN: N", authorization may be required due to the final destination and purpose for which the goods are to be used.

The deciding factors are the AL or ECCN export authorization indicated on order confirmations, delivery notes and invoices.

Errors excepted and subject to change without prior notice.

A&D/VuL_ohne MZ/En 05.09.06

Appendix

Notes



Explanations

DT (delivery time class)	<table><tr><th>DT</th><th>Meaning</th></tr><tr><td>▶</td><td>preferred type</td></tr><tr><td>A</td><td>two workdays</td></tr><tr><td>B</td><td>one week</td></tr><tr><td>C</td><td>three weeks</td></tr><tr><td>D</td><td>six weeks</td></tr><tr><td>X</td><td>on request</td></tr></table>	DT	Meaning	▶	preferred type	A	two workdays	B	one week	C	three weeks	D	six weeks	X	on request	Preferred types are device types that can be delivered immediately ex works, i.e. they are dispatched within 24 hours. If ordered in normal quantities, the products are usually delivered within the specified delivery times, calculated from the date we receive your order. In exceptional cases, delivery times may vary from those specified. The delivery times are valid ex works from Siemens AG (products ready for dispatch). Shipping times depend on the destination and the method of shipping. The standard shipping time for Germany is one day. The delivery time classes specified in the catalog are valid as of 10/2008 and are constantly being optimized. For more up-to-the-minute information, please visit our site at: http://www.siemens.com/automation/mail.
DT	Meaning															
▶	preferred type															
A	two workdays															
B	one week															
C	three weeks															
D	six weeks															
X	on request															
PU (price unit)	The PU column (price unit) specifies the quantity to which the price and weight refer.															
PS/P. unit (packaging size/ packaging unit)	The first digit in the PS/P. unit column (packaging size/packaging unit) indicates the minimum order quantity. You can only order this specified quantity or a multiple thereof. The second digit in the PS/P. unit column (packaging size/packaging unit) specifies the number of units contained in larger packaging (e.g. in a carton). You must order this quantity or a multiple thereof if you want the item to be delivered in a larger packaging quantity. Examples: <table><tr><th>PS/P. unit</th><th>Significance</th></tr><tr><td>1</td><td>You can order one item or a multiple thereof.</td></tr><tr><td>5</td><td>For example, five units are packed in a bag. Because the bags cannot be opened, you can only order a multiple of the quantity contained in the bag: 5, 10, 15, 20 etc.</td></tr><tr><td>5/100</td><td>One carton contains (for example) 20 bags, each containing 5 units, i.e. a total of 100 units. If only cartons are available for delivery, you need to order a multiple of the carton quantity: 100, 200, 300, etc. Ordering a quantity of 220 units, would produce the following delivery: two cartons, each containing 100 units (= 200 units) and 4 bags, each containing 5 units (= 20 units).</td></tr></table>		PS/P. unit	Significance	1	You can order one item or a multiple thereof.	5	For example, five units are packed in a bag. Because the bags cannot be opened, you can only order a multiple of the quantity contained in the bag: 5, 10, 15, 20 etc.	5/100	One carton contains (for example) 20 bags, each containing 5 units, i.e. a total of 100 units. If only cartons are available for delivery, you need to order a multiple of the carton quantity: 100, 200, 300, etc. Ordering a quantity of 220 units, would produce the following delivery: two cartons, each containing 100 units (= 200 units) and 4 bags, each containing 5 units (= 20 units).						
PS/P. unit	Significance															
1	You can order one item or a multiple thereof.															
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PG (Price Group)	Each product is assigned to a price group.															
Weight	The value specified in the Weight column specifies the weight in kg for the quantity specified in the PU column (price unit).															
Dimensions	Unless stated otherwise, all dimensions are specified in mm.															

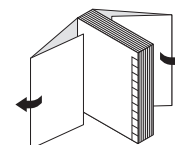
1	GAMMA instabus	Display, Operation
2		Output Devices
3		Input Devices
4		Combination Devices
5		Devices for Special Applications
6		Lighting
7		Sun-Protection, Anti-Glare Protection, Utilization of Daylight
8		Heating, Cooling, Ventilation, Air-Conditioning
9		Load Management
10		Safety
11		Quick-Assembly Systems
12		Gateways, Interface Converters
13		Physical Sensors
14		Control and Automation Devices
15		System Products
16		System Accessories
17	GAMMA wave	GAMMA wave Radio System
18		Application Examples
19		Technical Information
20		Appendix

Industry Automation, Drive Technologies and Electrical Installation Technology

Further information can be obtained from our branch offices listed in the appendix or at www.siemens.com/automation/partner

Automation and Drives		<i>Catalog</i>	
Interactive catalog on DVD		CA 01	
Drive Systems			
<u>Variable-Speed Drives</u>			
SINAMICS G110/SINAMICS G120	D 11.1		
Inverter Chassis Units			
SINAMICS G120D			
Distributed Frequency Inverters			
SINAMICS G130 Drive Converter Chassis Units,	D 11		
SINAMICS G150 Drive Converter Cabinet Units			
SINAMICS GM150/SINAMICS SM150	D 12		
Medium-Voltage Converters			
SINAMICS S150 Drive Converter Cabinet Units	D 21.3		
Asynchronous Motors Standardline	D 86.1		
Synchronous Motors with Permanent-Magnet Technology, HT-direct	D 86.2		
DC Motors	DA 12		
SIMOREG DC MASTER 6RA70 Digital Chassis Converters	DA 21.1		
SIMOREG K 6RA22 Analog Chassis Converters	DA 21.2		
<i>PDF: SIMOREG DC MASTER 6RM70 Digital Converter Cabinet Units</i>	DA 22		
SIMOVERT PM Modular Converter Systems	DA 45		
SIEMOSYN Motors	DA 48		
MICROMASTER 420/430/440 Inverters	DA 51.2		
MICROMASTER 411/COMBIMASTER 411	DA 51.3		
SIMOVERT MASTERDRIVES Vector Control	DA 65.10		
SIMOVERT MASTERDRIVES Motion Control	DA 65.11		
Synchronous and asynchronous servomotors for SIMOVERT MASTERDRIVES	DA 65.3		
SIMODRIVE 611 universal and POSMO	DA 65.4		
<u>Low-Voltage Three-Phase-Motors</u>			
IEC Squirrel-Cage Motors	D 81.1		
MOTOX Geared Motors	D 87.1		
<u>Automation Systems for Machine Tools SIMODRIVE</u>		NC 60	
• Motors			
• Converter Systems SIMODRIVE 611/POSMO			
<u>Automation Systems for Machine Tools SINAMICS</u>		NC 61	
• Motors			
• Drive System SINAMICS S120			
SIMOTION, SINAMICS S120 and Motors for Production Machines	PM 21		
<u>Drive and Control Components for Hoisting Equipment</u>		HE 1	
<u>Mechanical Driving Machines</u>			
Flender Standard Couplings	MD 10.1		
Electrical Installation Technology			
<i>PDF: ALPHA Distribution Boards and Terminal Blocks</i>	ETA 1		
<i>PDF: ALPHA 8HP Molded-Plastic Distribution System</i>	ETA 3		
<i>PDF: BETA Low-Voltage Circuit Protection</i>	ET B1		
<i>PDF: DELTA Switches and Socket Outlets</i>	ET D1		
<i>PDF: GAMMA Building Management Systems</i>	ET G1		
Human Machine Interface Systems SIMATIC HMI		ST 80	
Low-Voltage		<i>Catalog</i>	
Controls and Distribution – SIRIUS, SENTRON, SIVACON		LV 1	
Controls and Distribution – Technical Information		LV 1 T	
SIRIUS, SENTRON, SIVACON			
SIDAC Reactors and Filters		LV 60	
SIVENT Fans		LV 65	
SIVACON 8PS Busbar Trunking Systems		LV 70	
Motion Control			
SINUMERIK & SIMODRIVE		NC 60	
Automation Systems for Machine Tools			
SINUMERIK & SINAMICS		NC 61	
Automation Systems for Machine Tools			
SIMOTION, SINAMICS S120 and Motors for Production Machines		PM 21	
Process Instrumentation and Analytics			
Field Instruments for Process Automation		FI 01	
Measuring Instruments for Pressure, Differential Pressure, Flow, Level and Temperature, Positioners and Liquid Meters			
<i>PDF: Indicators for panel mounting</i>		MP 12	
SIREC Recorders and Accessories		MP 20	
SIPART, Controllers and Software		MP 31	
SIWAREX Weighing Systems		WT 01	
Continuous Weighing and Process Protection		WT 02	
Process Analytical Instruments		PA 01	
<i>PDF: Process Analytics, Components for the System Integration</i>		PA 11	
SIMATIC Industrial Automation Systems			
Products for Totally Integrated Automation and Micro Automation		ST 70	
SIMATIC PCS 7 Process Control System		ST PCS 7	
Add-ons for the SIMATIC PCS 7 Process Control System		ST PCS 7.1	
Migration solutions with the SIMATIC PCS 7 Process Control System		ST PCS 7.2	
pc-based Automation		ST PC	
SIMATIC Control Systems		ST DA	
SIMATIC NET			
Industrial Communication		IK PI	
SIMATIC Sensors			
Sensors for Factory Automation		FS 10	
Systems Engineering			
Power supplies SITOP power and LOGO! Power		KT 10.1	
System cabling SIMATIC TOP connect		KT 10.2	
System Solutions			
Applications and Products for Industry are part of the interactive catalog CA 01			
TELEPERM M Process Control System			
<i>PDF: AS 488/TM automation systems</i>		PLT 112	

IA DT ET/3U/En 17.11.08



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Subject to change without prior notice
PDF only: (E86060-K8230-A101-A9-7600)
3P.8103.62.02
KG 1108 284 En
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